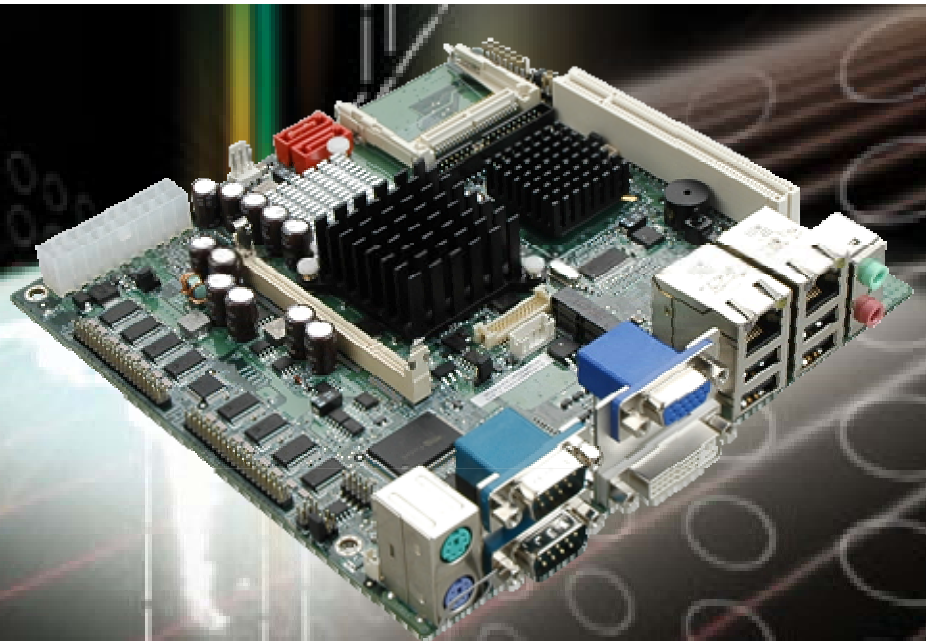




IEI Technology Corp.



MODEL:
KINO-945GSE3

Mini-ITX Single Board Computer with Intel® Atom™ N270 1.6 GHz Processor, Dual Gigabit Ethernet, Audio, VGA/LVDS/DVI-D/HDTV-out, Six USB, Nine RS-232, RS-232/422/485, CompactFlash® Type II, Two SATA, RoHS Compliant

User Manual

Rev. 1.00 – 7 September, 2010



Revision

| Date | Version | Changes |
|-------------------|---------|-----------------|
| 7 September, 2010 | 1.00 | Initial release |

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Chapter

1

Introduction

1.1 Introduction

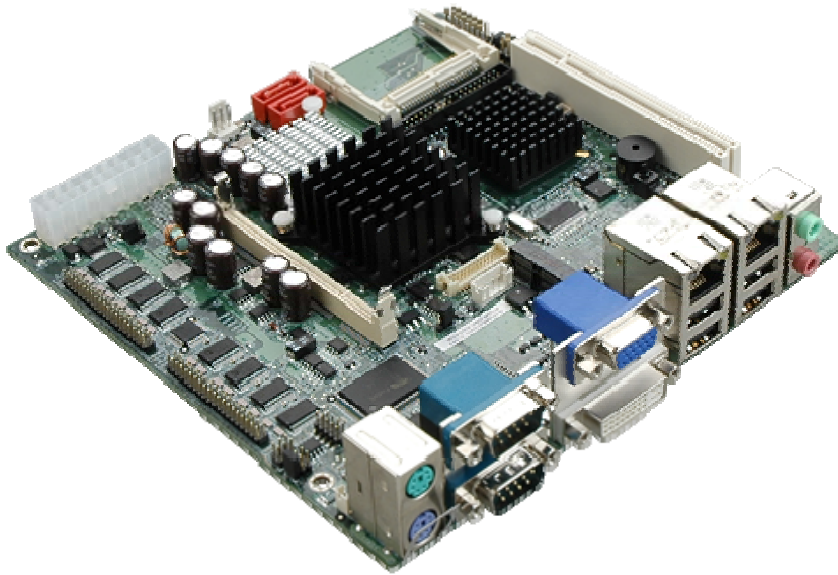


Figure 1-1: KINO-945GSE3

The KINO-945GSE3 Mini-ITX motherboards are embedded 45 nm Intel® Atom™ processor platforms. The Intel® Atom™ processor N270 embedded on the KINO-945GSE3 has a 1.60 GHz clock speed, a 533 MHz FSB and a 512 KB L2 cache. The KINO-945GSE3 supports one 200-pin 400/533 MHz 2.0 GB (max.) DDR2 SDRAM SO-DIMM. The KINO-945GSE3 comes with an 18-bit dual-channel LVDS connector, a VGA port, a HDTV-out connector, and a DVI-D port. The KINO-945GSE3 also comes with two PCI Express (PCIe) Gigabit Ethernet (GbE) ports, a RS-232 serial port (eight additional serial ports by internal connectors) and a RS-232/422/485 connector, four USB ports and two additional USB ports by internal connector. Two SATA connectors, a parallel ATA (IDE) and a CompactFlash® slot provide storage options to the KINO-945GSE3.

1.2 KINO-945GSE3 Overview

The KINO-945GSE3 has a wide variety of peripheral interface connectors. **Figure 1-2** is a labeled photo of the peripheral interface connectors on the KINO-945GSE3.

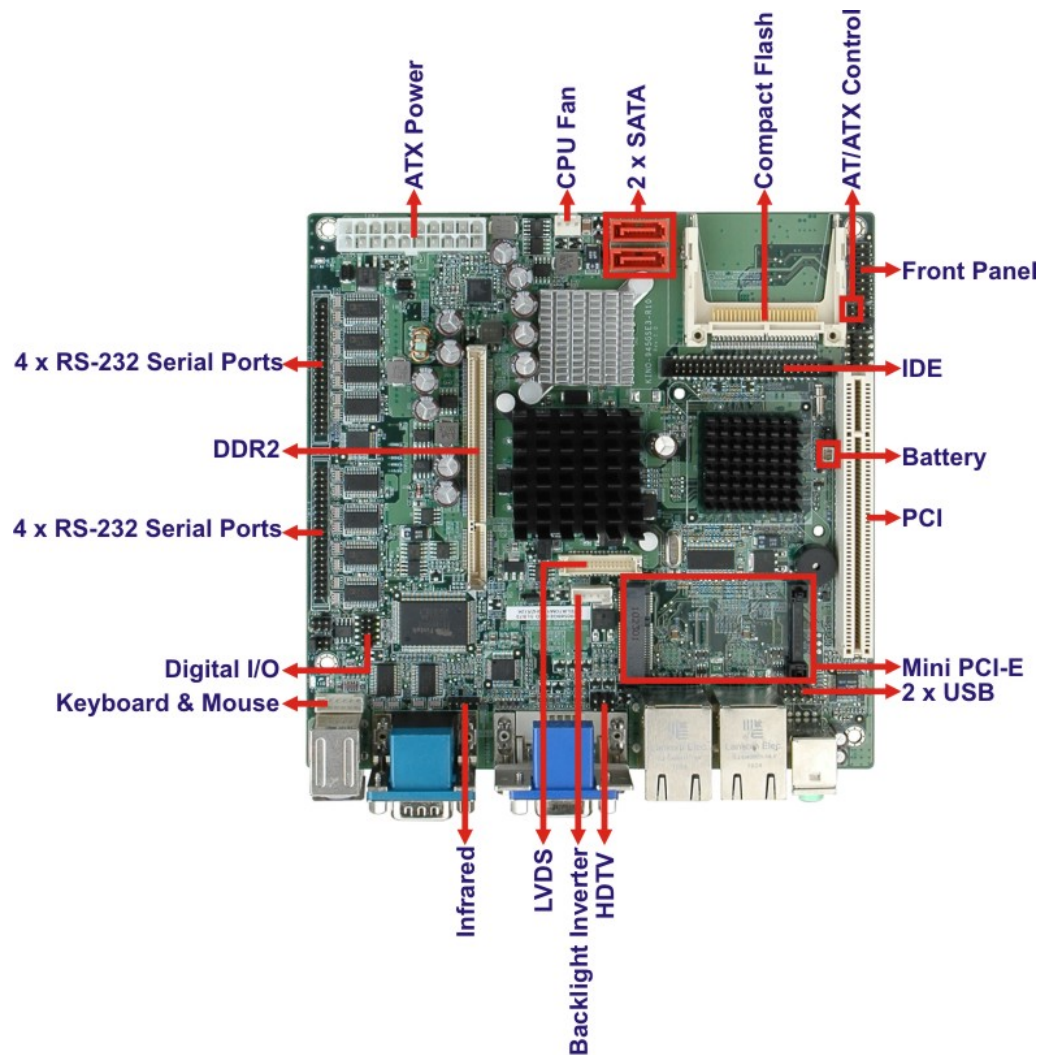


Figure 1-2: KINO-945GSE3 Overview

1.2.1 Dimensions

The dimensions of the board are listed below:

- **Length:** 170 mm
- **Width:** 170 mm

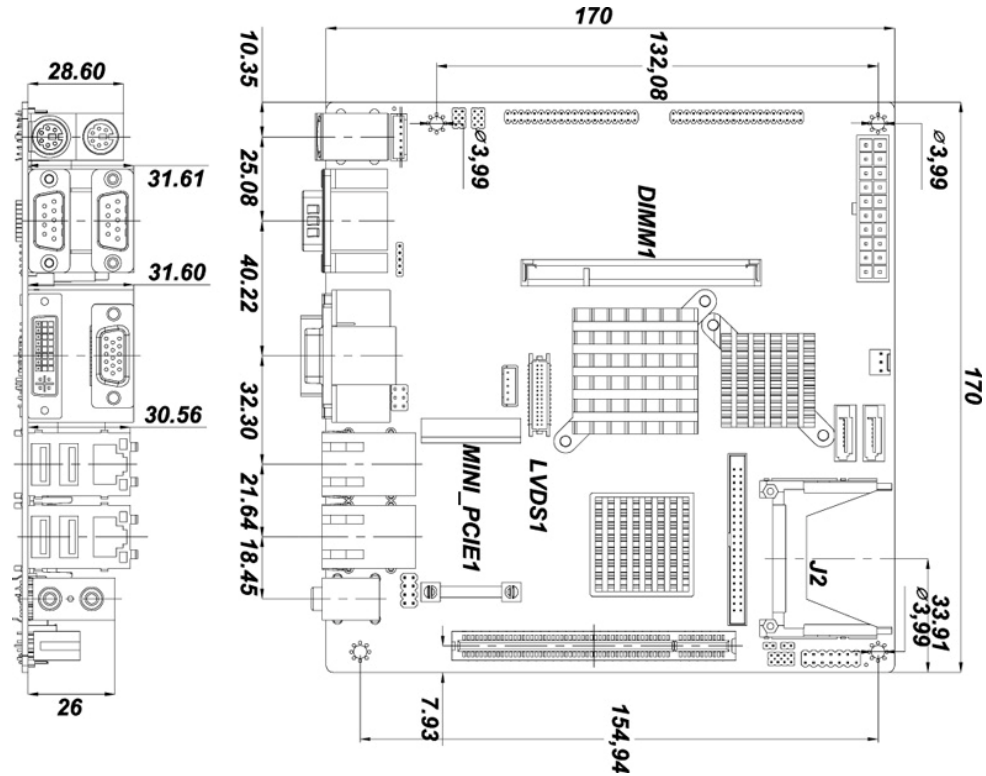


Figure 1-3: KINO-945GSE3 Dimensions (mm)

1.2.2 Data Flow

Figure 1-4 shows the data flow between the two on-board chipsets and other components installed on the motherboard and described in the following sections of this chapter.

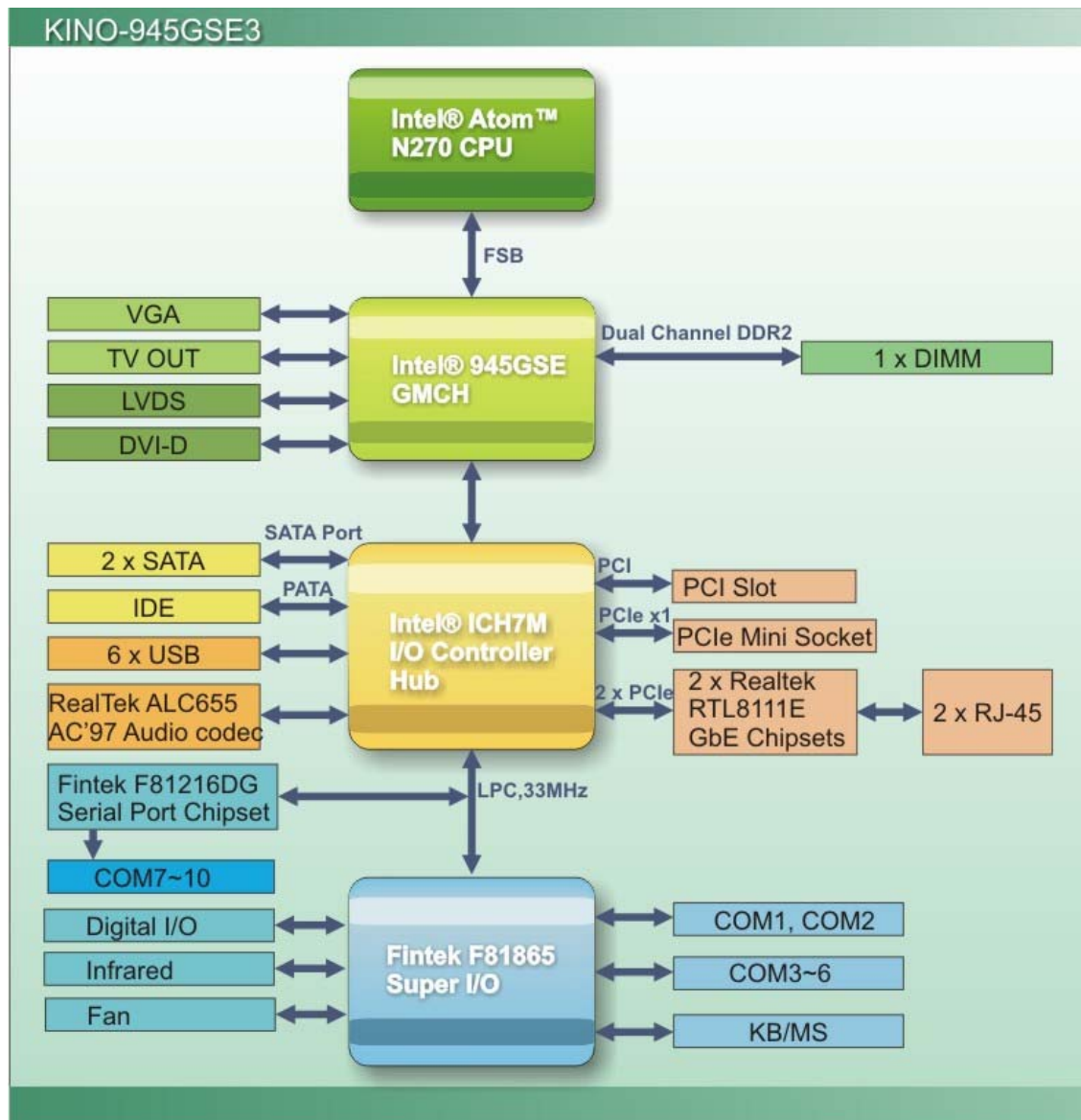


Figure 1-4: Data Flow Block Diagram

1.2.3 Technical Specifications

KINO-945GSE3 technical specifications are listed below.

| Specification/Model | KINO-945GSE3 |
|---------------------------------|--|
| Form Factor | Mini-ITX |
| CPU | 1.6 GHz Intel® Atom™ N270 |
| Front Side Bus (FSB) | 533 MHz |
| Northbridge Chipset | Intel® 945GSE |
| Integrated Graphics | Intel® 945GSE, Intel® Generation 3.5 integrated GFX Core (133Mhz), Intel® Graphics Media Accelerator 950 |
| Memory | One 200-pin 533 MHz DDR2 SDRAM SO-DIMM supported (system max. 2.0 GB) |
| Southbridge Chipset | Intel® ICH7M |
| Audio | Realtek ALC655 AC'97 Codec |
| BIOS | AMI BIOS |
| Digital I/O | 8-bit, 4-bit input/4-bit output |
| Ethernet Controllers | Two Realtek RTL8111E GbE controllers with ASF2.0 support |
| Super I/O Controller | Fintek F81865 |
| Watchdog Timer | Software programmable supports 1~255 sec. system reset |
| Infrared | One infrared connector through the Fintek F81865 |
| I/O Interface Connectors | |
| Audio Connectors | One Line-out jack One Mic-in jack |
| Display | One VGA One DVI-D One LVDS (internal) One HDTV (internal) |
| Ethernet | Two RJ-45 ports |

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| | |
|---|--|
| Specification/Model | KINO-945GSE3 |
| Keyboard/Mouse | Two PS/2 ports One KB/MS (internal) connector |
| Serial Ports | One RS-232 serial ports One RS-232/422/485 serial port Eight RS-232 via internal pin headers |
| USB 2.0/1.1 ports | Four external USB ports Two via internal pin headers |
| Expansion | |
| PCI | One PCI slot |
| PCIe | One PCIe Mini socket |
| Storage | |
| CompactFlash® | One CompactFlash® Type II socket |
| Parallel ATA | One Parallel ATA (IDE) connector |
| Serial ATA | Two independent serial ATA (SATA) channels with 1.5 Gb/s data transfer rates |
| Environmental and Power Specifications | |
| Power Supply | AT/ATX supported |
| Power Consumption | 12V @ 0.43 A (1.6 GHz Intel® Atom™ one 2.0 GB DDR2 SO-DIMM) |
| Temperature (operating) | -10°C ~ 60°C (0°F - 140°F) |
| Humidity (operating) | 5% ~ 95% (non-condensing) |
| Physical Specifications | |
| Dimensions | 170 mm x 170 mm |
| Weight GW/NW | 1100 g/370 g |
| Table 1-1: Technical Specifications | |

Chapter

2

Unpacking

2.1 Unpacking Checklist



WARNING!

Static electricity can destroy certain electronics. Make sure to follow the ESD precautions to prevent damage to the product, and injury to the user.

Make sure to adhere to the following guidelines:

- ***Wear an anti-static wristband:*** Wearing an anti-static wristband can prevent electrostatic discharge.
- ***Self-grounding:*** Touch a grounded conductor every few minutes to discharge any excess static buildup.
- ***Use an anti-static pad:*** When configuring any circuit board, place it on an anti-static mat.
- ***Only handle the edges of the PCB:*** Don't touch the surface of the motherboard. Hold the motherboard by the edges when handling.

2.2 Unpacking Precautions

When the KINO-945GSE3 is unpacked, please do the following:

- Follow the antistatic guidelines above.
- Make sure the packing box is facing upwards when opening.
- Make sure all the packing list items are present.







Packing List




NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the KINO-945GSE3 was purchased from or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The KINO-945GSE3 is shipped with the following components:





| Quantity | Item and Part Number | Image |
|----------|---|--|
| 1 | KINO-945GSE3 (P/N: KINO-945GSE3-R10) |  |
| 2 | SATA cable (P/N: 32000-062800-RS) |  |
| 2 | 4 port RS-232 cable (without bracket) (P/N: 32200-025401-RS) |  |
| 1 | I/O Shielding (P/N: 45014-0008C0-00-RS) |  |
| 1 | Mini jumper pack (2.0mm) |  |
| 1 | Utility CD |  |

KINO-945GSE3 User Manual

| | | |
|---|--------------------------|--|
| 1 | Quick Installation Guide |  |
|---|--------------------------|--|

2.2.1 Optional Items

The following components are optional:

| Item and Part Number | Image |
|--|---|
| Dual USB cable (w bracket) (P/N: CB-USB02-RS) |  |
| IDE cable, 44-pin to 44-pin (P/N: 32200-000009-RS) |  |
| RS-232/422/485 cable (P/N: 32200-0833600-RS) |  |
| HDTV out cable (P/N: HDTV CABLESET-01) | |
| SATA power cable (P/N: 32100-000100-100-RS) (P/N: 32100-000100-200-RS) (P/N: 32100-000100-300-RS) |  |

Chapter

3

Connectors

3.1 Peripheral Interface Connectors

Figure 3-1 shows the on-board peripheral connectors, rear panel peripheral connectors and on-board jumpers.

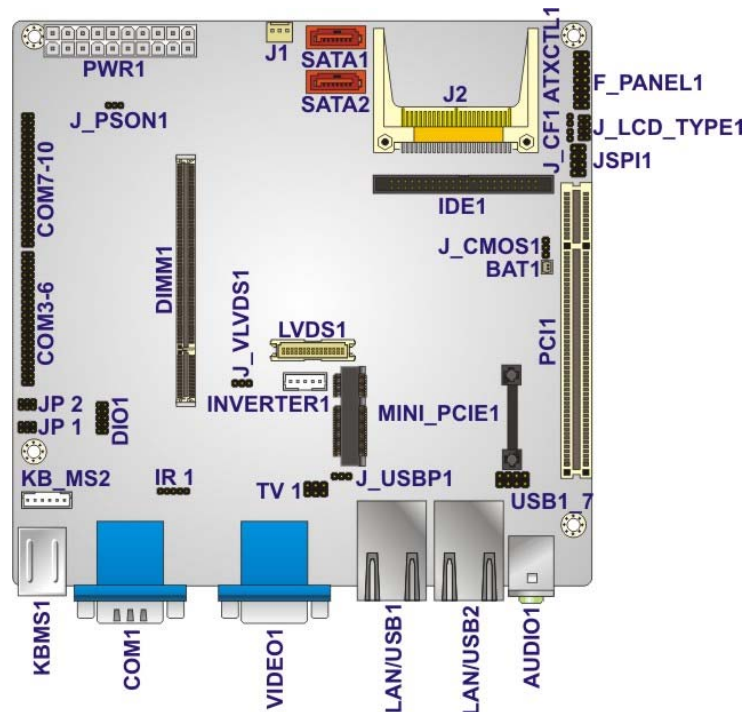


Figure 3-1: Connector and Jumper Locations [Front Side]

3.2 Peripheral Interface Connectors

The table below lists all the connectors on the KINO-945GSE3. Detailed descriptions of these connectors can be found below.

| Connector | Type | Label |
|--------------------------------------|------------------|-----------|
| ATX power input connector | 20-pin (2x10) | PWR1 |
| Backlight inverter connector | 5-pin wafer | INVERTER1 |
| Battery connector | 2-pin wafer | BT1 |
| CompactFlash® socket | 50-pin CF socket | J2 |
| DDR2 SO-DIMM slot | SO-DIMM socket | DIMM1 |
| Digital input/output (DIO) connector | 10-pin header | DIO1 |

| Connector | Type | Label |
|-------------------------------------|-------------------|-----------------|
| CPU Fan connector | 3-pin wafer | J1 |
| Front panel connector | 14-pin header | F_PANEL1 |
| Infrared interface (IrDA) connector | 5-pin header | IR1 |
| Keyboard/Mouse connector | 6-pin wafer | KB_MS1 |
| LVDS connector | 30-pin crimp | LVDS1 |
| Parallel ATA (IDE) | 44-pin box header | IDE1 |
| PCI | PCI slot | PCI1 |
| PCIe Mini | PCIe Mini socket | MINI_PCIE1 |
| Serial ATA (SATA) drive connector | 7-pin SATA | SATA1, SATA2 |
| Serial port connectors (RS-232) | 40-pin header | COM3-6, COM7-10 |
| SPI flash connector | 8-pin header | JSPI1 |
| USB | 8-pin header | USB1_7 |
| HDTV-out | 6-pin header | TV1 |

Table 3-1: Peripheral Interface Connectors

3.2.1 External Interface Panel Connectors

The table below lists the connectors on the external I/O panel.

| Connector | Type | Label |
|--------------------------------------|---------------|------------|
| Audio (line-out, mic-in) | Audio jacks | AUDIO1 |
| Ethernet connectors | RJ-45 | LAN1, LAN2 |
| Keyboard/mouse connectors | PS/2 | KBMS1 |
| RS-232 serial port connector | Male DB-9 | COM1 |
| RS-232/422/485 serial port connector | Male DB-9 | COM1 |
| Dual USB ports | USB port | USB1, USB2 |
| VGA port connector | 15-pin female | VIDEO1 |

Table 3-2: Rear Panel Connectors

3.3 Internal Peripheral Connectors

The section describes all of the connectors on the KINO-945GSE3.

3.3.1 ATX Power Connector

CN Label: PWR1

CN Type: 20-pin ATX (2x10)

CN Location: See **Figure 3-2**

CN Pinouts: See **Table 3-3**

The ATX power connector connects to an ATX power supply.

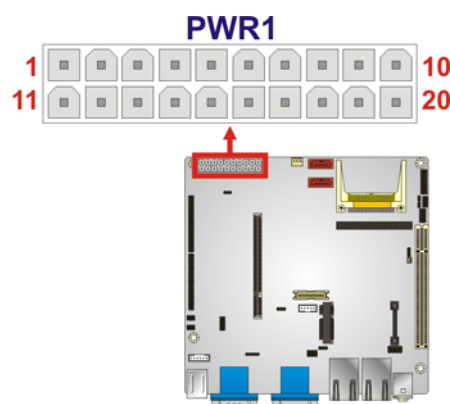


Figure 3-2: ATX Power Connector Pinout Locations

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | +3.3 V | 11 | +3.3 V |
| 2 | +3.3 V | 12 | -12 V |
| 3 | GND | 13 | GND |
| 4 | +5 V | 14 | PS-ON |
| 5 | GND | 15 | GND |
| 6 | +5 V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | PW-OK | 18 | -5 V |
| 9 | +VCC5SB | 19 | +5 V |

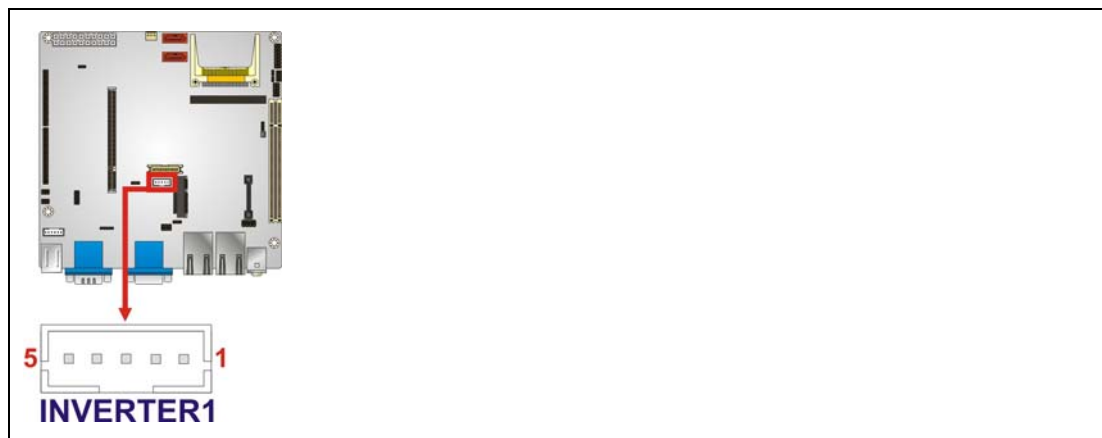
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 10 | FP22 | 20 | +5 V |

Table 3-3: ATX Power Connector Pinouts

3.3.2 Backlight Inverter Connector

- CN Label:** INVERTER1
- CN Type:** 5-pin wafer (1x5)
- CN Location:** See **Figure 3-3**
- CN Pinouts:** See **Table 3-4**

The backlight inverter connector provides the backlight on the LCD display connected to the KINO-945GSE3 with +12V of power.


Figure 3-3: Backlight Inverter Connector Pinout Locations

| PIN NO. | DESCRIPTION |
|---------|-----------------------|
| 1 | LCD Backlight Control |
| 2 | GROUND |
| 3 | + 12V |
| 4 | GROUND |
| 5 | BACKLIGHT Enable |

Table 3-4: Panel Backlight Connector Pinouts

3.3.3 Battery Connector

- CN Label:** BAT1
- CN Type:** 2-pin wafer (1x2)
- CN Location:** See **Figure 3-4**
- CN Pinouts:** See **Table 3-5**

This is connected to the system battery. The battery provides power to the system clock to retain the time when power is turned off.

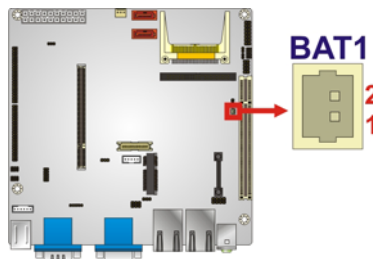


Figure 3-4: Battery Connector Location

| Pin | Description |
|-----|-------------|
| 1 | Battery+ |
| 2 | Ground |

Table 3-5: Battery Connector Pinouts

3.3.4 CompactFlash® Socket

- CN Label:** J2 (solder side)
- CN Type:** 50-pin header (2x25)
- CN Location:** See **Figure 3-5**
- CN Pinouts:** See **Table 3-6**

A CF Type I or Type II memory card is inserted to the CF socket on the solder side of the KINO-945GSE3.



Figure 3-5: CF Card Socket Location

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|---------------|
| 1 | GROUND | 26 | VCC-IN CHECK1 |
| 2 | DATA 3 | 27 | DATA 11 |
| 3 | DATA 4 | 28 | DATA 12 |
| 4 | DATA 5 | 29 | DATA 13 |
| 5 | DATA 6 | 30 | DATA 14 |
| 6 | DATA 7 | 31 | DATA 15 |
| 7 | HDC_CS0# | 32 | HDC_CS1 |
| 8 | N/C | 33 | N/C |
| 9 | GROUND | 34 | IOR# |
| 10 | N/C | 35 | IOW# |
| 11 | N/C | 36 | VCC_COM |
| 12 | N/C | 37 | IRQ15 |
| 13 | VCC_COM | 38 | VCC_COM |
| 14 | N/C | 39 | CSEL |
| 15 | N/C | 40 | N/C |
| 16 | N/C | 41 | HDD_RESET |
| 17 | N/C | 42 | IORDY |
| 18 | SA2 | 43 | SDREQ |
| 19 | SA1 | 44 | SDACK# |
| 20 | SA0 | 45 | HDD_ACTIVE# |
| 21 | DATA 0 | 46 | 66DET |

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|---------------|---------|-------------|
| 22 | DATA 1 | 47 | DATA 8 |
| 23 | DATA 2 | 48 | DATA 9 |
| 24 | N/C | 49 | DATA 10 |
| 25 | VCC-IN CHECK2 | 50 | GROUND |

Table 3-6: CF Card Socket Pinouts

3.3.5 CPU Fan Connector (+12V, 3-pin)

- CN Label:** J1
- CN Type:** 3-pin header
- CN Location:** See **Figure 3-6**
- CN Pinouts:** See **Table 3-7**

The cooling fan connector provides a 12V, 500mA current to the cooling fan. The connector has a "rotation" pin to get rotation signals from fans and notify the system so the system BIOS can recognize the fan speed. Please note that only specified fans can issue the rotation signals.

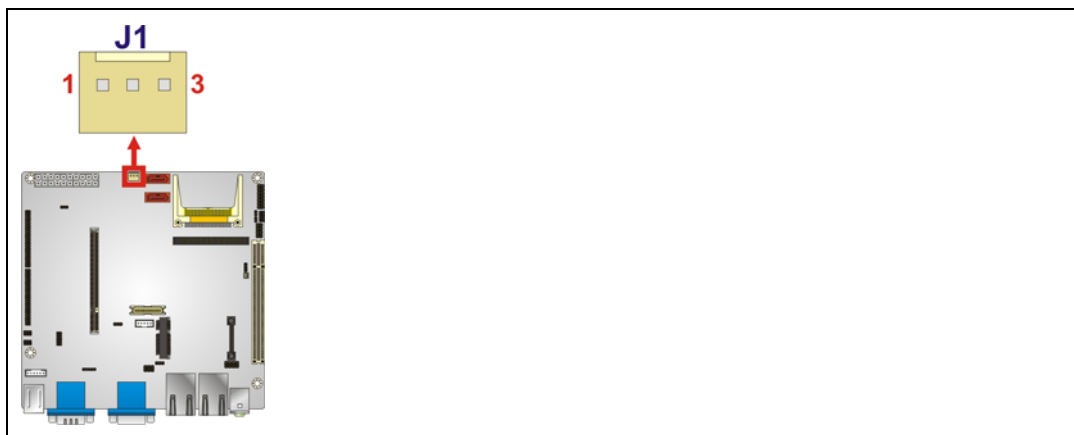


Figure 3-6: +12V Fan Connector Location

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | FANIO1 |
| 2 | PWM1 |
| 3 | GND |

Table 3-7: +12V Fan Connector Pinouts

3.3.6 Digital Input/Output (DIO) Connector

CN Label: DIO1

CN Type: 10-pin header (2x5)

CN Location: See **Figure 3-7**

CN Pinouts: See **Table 3-8**

The digital input/output connector is managed through a Super I/O chip. The DIO connector pins are user programmable.



Figure 3-7: DIO Connector Locations

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | GND | 2 | VCC |
| 3 | Output 3 | 4 | Output 2 |
| 5 | Output 1 | 6 | Output 0 |
| 7 | Input 3 | 8 | Input 2 |
| 9 | Input 1 | 10 | Input 0 |

Table 3-8: DIO Connector Pinouts

3.3.7 Front Panel Connector (8-pin)

CN Label: F_PANEL1

CN Type: 14-pin header (2x7)

CN Location: See **Figure 3-8**

CN Pinouts: See **Table 3-9**

The front panel connector connects to external switches and indicators to monitor and controls the CPU card.

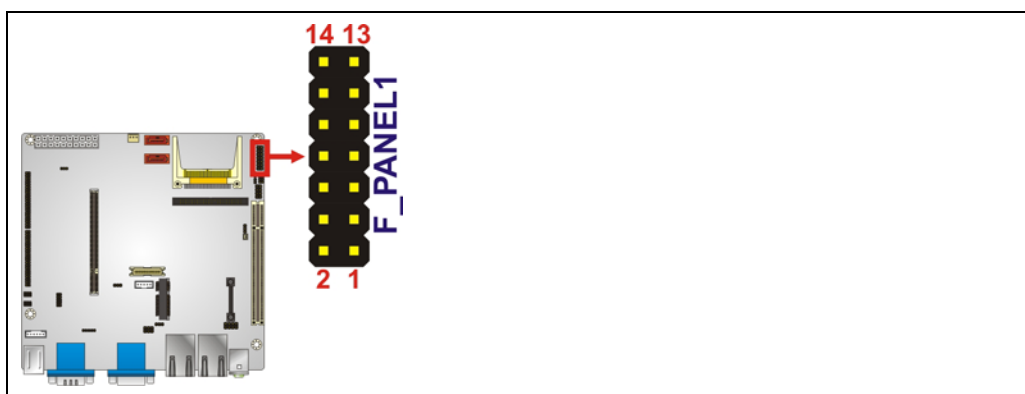


Figure 3-8: Front Panel Connector Pinout Locations (8-pin)

| FUNCTION | PIN | DESCRIPTION | FUNCTION | PIN | DESCRIPTION |
|--------------|-----|-------------|----------|-----|-------------|
| Power LED | 1 | +5 V | Speaker | 2 | +5 V |
| | 3 | N/C | | 4 | N/C |
| | 5 | Ground | | 6 | N/C |
| Power Button | 7 | PWRBTN- | Reset | 8 | Speaker |
| | 9 | GND | | 10 | N/C |
| HDD LED | 11 | +5 V | | 12 | Reset- |
| | 13 | HDD LED- | | 14 | GND |

Table 3-9: Front Panel Connector Pinouts

3.3.8 Infrared Interface Connector

CN Label: IR1

CN Type: 5-pin header (1x5)

CN Location: See **Figure 3-9**

CN Pinouts: See **Table 3-10**

The infrared interface connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

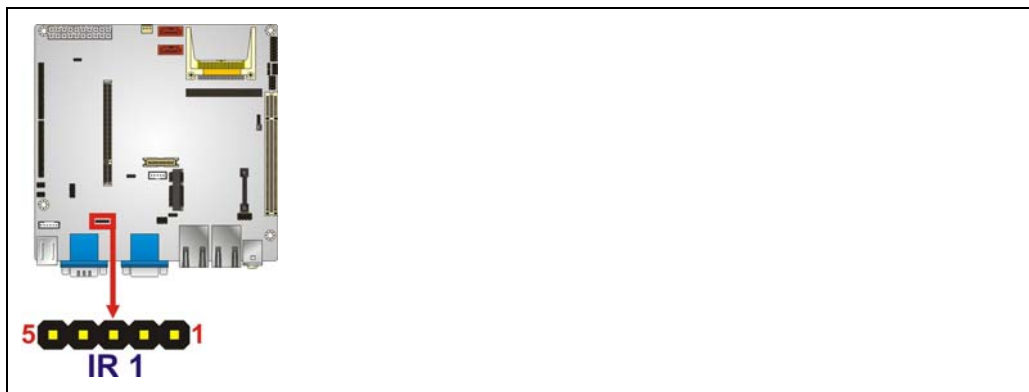


Figure 3-9: Infrared Connector Pinout Locations

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | NC |
| 3 | IR-RX |
| 4 | GND |
| 5 | IR-TX |

Table 3-10: Infrared Connector Pinouts

3.3.9 Keyboard/Mouse

CN Label: KB_MS1

CN Type: 6-pin header (1x6)

CN Location: See **Figure 3-10**

CN Pinouts: See **Table 3-11**

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The keyboard/mouse connector connects to a PS/2 Y-cable that can be connected to a PS/2 keyboard and mouse.

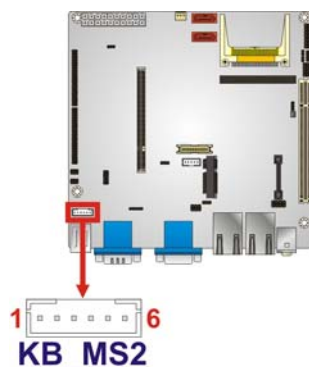


Figure 3-10: Keyboard/Mouse Connector Location

| Pin | Description |
|-----|--------------|
| 1 | +5 V KB DATA |
| 2 | MS DATA |
| 3 | MS CLK |
| 4 | KB DATA |
| 5 | KB CLK |
| 6 | GROUND |

Table 3-11: Keyboard/Mouse Connector Pinouts

3.3.10 LVDS LCD Connector

| | |
|---------------------|------------------------|
| CN Label: | LVDS1 |
| CN Type: | 30-pin crimp (2x15) |
| CN Location: | See Figure 3-11 |
| CN Pinouts: | See Table 3-12 |

The LVDS connector is for an LCD panel connected to the board.

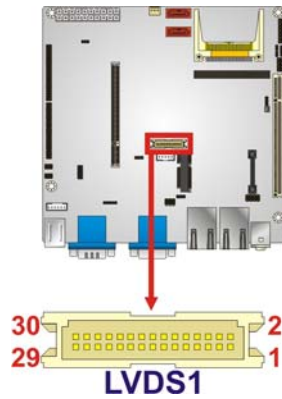


Figure 3-11: LVDS Connector Location

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | GROUND | 2 | GROUND |
| 3 | LVDSA_Y0+ | 4 | LVDSA_Y0- |
| 5 | LVDSA_Y1+ | 6 | LVDSA_Y1- |
| 7 | LVDSA_Y2+ | 8 | LVDSA_Y2- |
| 9 | LVDSA_CLK+ | 10 | LVDSA_CLK- |
| 11 | N/C | 12 | N/C |
| 13 | GROUND | 14 | GROUND |
| 15 | LVDSB_Y0+ | 16 | LVDSB_Y0- |
| 17 | LVDSB_Y1+ | 18 | LVDSB_Y1- |
| 19 | LVDSB_Y2+ | 20 | LVDSB_Y2- |
| 21 | LVDSB_CLK+ | 22 | LVDSB_CLK- |
| 23 | N/C | 24 | N/C |
| 25 | GROUND | 26 | GROUND |
| 27 | VCC_LVDS | 28 | VCC_LVDS |
| 29 | VCC_LVDS | 30 | VCC_LVDS |

Table 3-12: LVDS Connector Pinouts

3.3.11 Parallel ATA (IDE)

- CN Label:** IDE1
- CN Type:** 44-pin box header (2x22)
- CN Location:** See **Figure 3-12**
- CN Pinouts:** See **Table 3-13**

The Parallel ATA (IDE) connector can connect to an IDE hard drive or optical device.

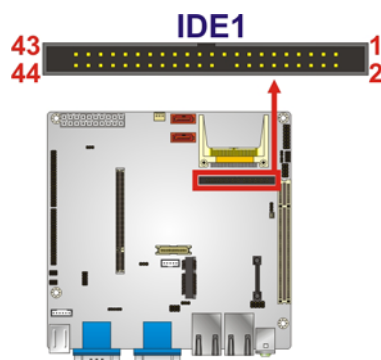


Figure 3-12: IDE Connector Location

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | RESET# | 2 | GROUND |
| 3 | DATA 7 | 4 | DATA 8 |
| 5 | DATA 6 | 6 | DATA 9 |
| 7 | DATA 5 | 8 | DATA 10 |
| 9 | DATA 4 | 10 | DATA 11 |
| 11 | DATA 3 | 12 | DATA 12 |
| 13 | DATA 2 | 14 | DATA 13 |
| 15 | DATA 1 | 16 | DATA 14 |
| 17 | DATA 0 | 18 | DATA 15 |
| 19 | GROUND | 20 | N/C |
| 21 | IDE DRQ | 22 | GROUND |
| 23 | IOW# | 24 | GROUND |
| 25 | IOR# | 26 | GROUND |

| Pin | Description | Pin | Description |
|-----|-------------|-----|----------------|
| 27 | IDE CHRDY | 28 | GROUND |
| 29 | IDE DACK | 30 | GROUND-DEFAULT |
| 31 | INTERRUPT | 32 | N/C |
| 33 | SA1 | 34 | N/C |
| 35 | SA0 | 36 | SA2 |
| 37 | HDC CS0# | 38 | HDC CS1# |
| 39 | HDD ACTIVE# | 40 | GROUND |
| 41 | VCC | 42 | VCC |
| 43 | GROUND | 44 | N/C |

Table 3-13: IDE Connector Pinouts

3.3.12 PCI Slot

- CN Label:** PCI1
- CN Type:** PCI Slot
- CN Location:** See **Figure 3-13**
- CN Pinouts:** See **Table 3-14**

The PCI slot enables a PCI expansion module to be connected to the board.

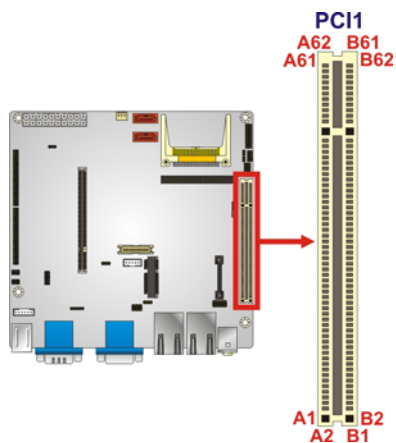


Figure 3-13: PCI Slot Location

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| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| A1 | TRST | B1 | -12 V |
| A2 | +12 V | B2 | TCK |
| A3 | TMS | B3 | GND |
| A4 | TDI | B4 | TDO |
| A5 | +5 V | B5 | +5 V |
| A6 | INTA | B6 | +5 V |
| A7 | INTC | B7 | INTB |
| A8 | +5 V | B8 | INTD |
| A9 | RESERVED3 | B9 | PRSNT1 |
| A10 | +5 V | B10 | RESERVED1 |
| A11 | RESERVED4 | B11 | PRSNT2 |
| A12 | GND | B12 | GND |
| A13 | GND | B13 | GND |
| A14 | 3.3 V_AUX | B14 | RESERVED2 |
| A15 | RST | B15 | GND |
| A16 | +5 V | B16 | CLK |
| A17 | GNT | B17 | GND |
| A18 | GND | B18 | REQ |
| A19 | PME | B19 | +5 V |
| A20 | AD30 | B20 | AD31 |
| A21 | +3.3 V | B21 | AD29 |
| A22 | AD28 | B22 | GND |
| A23 | AD26 | B23 | AD27 |
| A24 | GND | B24 | AD25 |
| A25 | AD24 | B25 | +3.3 V |
| A26 | IDSEL | B26 | C/BE3 |
| A27 | +3.3 V | B27 | AD23 |
| A28 | AD22 | B28 | GND |
| A29 | AD20 | B29 | AD21 |
| A30 | GND | B30 | AD19 |
| A31 | AD18 | B31 | +3.3 V |
| A32 | AD16 | B32 | AD17 |

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| A33 | +3.3 V | B33 | C/BE2 |
| A34 | FRAME | B34 | GND |
| A35 | GND | B35 | IRDY |
| A36 | TRDY | B36 | +3.3 V |
| A37 | GND | B37 | DEVSEL |
| A38 | STOP | B38 | GND |
| A39 | +3.3 V | B39 | LOCK |
| A40 | SDONE | B40 | PERR |
| A41 | SBO | B41 | +3.3 V |
| A42 | GND | B42 | SERR |
| A43 | PAR | B43 | +3.3 V |
| A44 | AD15 | B44 | C/BE1 |
| A45 | +3.3 V | B45 | AD14 |
| A46 | AD13 | B46 | GND |
| A47 | AD11 | B47 | AD12 |
| A48 | GND | B48 | AD10 |
| A49 | AD9 | B49 | GND |
| A52 | C/BE0 | B52 | AD8 |
| A53 | +3.3 V | B53 | AD7 |
| A54 | AD6 | B54 | +3.3 V |
| A55 | AD4 | B55 | AD5 |
| A56 | GND | B56 | AD3 |
| A57 | AD2 | B57 | GND |
| A68 | AD0 | B68 | AD1 |
| A59 | +5 V | B59 | +5 V |
| A60 | REQ64 | B60 | ACK64 |
| A61 | +5 V | B61 | +5 V |
| A62 | +5 V | B62 | +5 V |

Table 3-14: PCI Slot

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3.3.13 PCIe Mini Card Slot

CN Label: MINIPCI1

CN Type: PCIe Mini card slot

CN Location: See **Figure 3-14**

CN Pinouts: See **Table 3-15**

The PCIe Mini card slot is for installing PCIe Mini expansion cards.

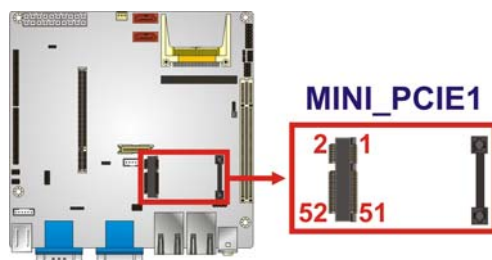


Figure 3-14: PCIe Mini Card Slot Location

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | PCIE_WAKE# | 2 | VCC3 |
| 3 | N/C | 4 | GND |
| 5 | N/C | 6 | 1.5 V |
| 7 | CLKREQ# | 8 | LFRAME# |
| 9 | GND | 10 | LAD3 |
| 11 | CLK- | 12 | LAD2 |
| 13 | CLK+ | 14 | LAD1 |
| 15 | GND | 16 | LAD0 |
| 17 | PCIRST# | 18 | GND |
| 19 | LPC | 20 | VCC3 |
| 21 | GND | 22 | PCIRST# |
| 23 | PERN2 | 24 | 3 VDual |
| 25 | PERP2 | 26 | GND |
| 27 | GND | 28 | 1.5 V |
| 29 | GND | 30 | SMBCLK |

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 31 | PETN2 | 32 | SMBDATA |
| 33 | PETP2 | 34 | GND |
| 35 | GND | 36 | USBD- |
| 37 | N/C | 38 | USBD+ |
| 39 | N/C | 40 | GND |
| 41 | N/C | 42 | N/C |
| 43 | N/C | 44 | RF_LINK# |
| 45 | N/C | 46 | BLUELED# |
| 47 | N/C | 48 | 1.5 V |
| 49 | N/C | 50 | GND |
| 51 | N/C | 52 | VCC3 |

Table 3-15: PCIe Mini Card Slot Pinouts

3.3.14 SATA Drive Connectors

CN Label: SATA1, SATA2

CN Type: 7-pin SATA drive connectors

CN Location: See Figure 3-15

CN Pinouts: See Table 3-16

The SATA connectors connect to SATA hard drives or optical drives.



Figure 3-15: SATA Drive Connector Locations

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | GND |
| 2 | TX+ |
| 3 | TX- |
| 4 | GND |
| 5 | RX- |
| 6 | RX+ |
| 7 | GND |

Table 3-16: SATA Drive Connector Pinouts

3.3.15 Serial Port Connector

- CN Label:** COM3-6, COM7-10
- CN Type:** 40-pin header (2x20)
- CN Location:** See **Figure 3-16**
- CN Pinouts:** See **Table 3-17**

Each connector provides RS-232 connections for four serial ports.

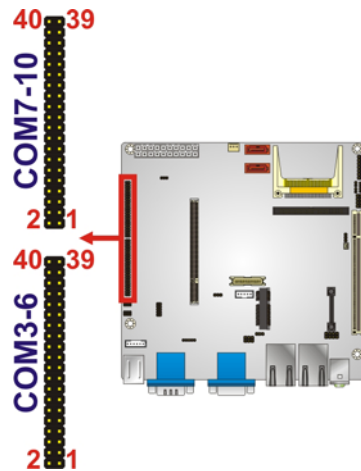


Figure 3-16: Serial Port Connector Location

| Pin | Description | Pin | Description |
|-----|----------------------------|-----|------------------------|
| 1 | DATA CARRIER DETECT (DCD1) | 2 | DATA SET READY (DSR1) |
| 3 | RECEIVE DATA (RXD1) | 4 | REQUEST TO SEND (RTS1) |
| 5 | TRANSMIT DATA (TXD1) | 6 | CLEAR TO SEND (CTS1) |
| 7 | DATA TERMINAL READY (DTR1) | 8 | RING INDICATOR (RI1) |
| 9 | GND | 10 | GND |
| 11 | DATA CARRIER DETECT (DCD2) | 12 | DATA SET READY (DSR2) |
| 13 | RECEIVE DATA (RXD2) | 14 | REQUEST TO SEND (RTS2) |
| 15 | TRANSMIT DATA (TXD2) | 16 | CLEAR TO SEND (CTS2) |
| 17 | DATA TERMINAL READY (DTR2) | 18 | RING INDICATOR (RI2) |
| 19 | GND | 20 | GND |
| 21 | DATA CARRIER DETECT (DCD3) | 22 | DATA SET READY (DSR3) |
| 23 | RECEIVE DATA (RXD3) | 24 | REQUEST TO SEND (RTS3) |
| 25 | TRANSMIT DATA (TXD3) | 26 | CLEAR TO SEND (CTS3) |
| 27 | DATA TERMINAL READY (DTR3) | 28 | RING INDICATOR (RI3) |
| 29 | GND | 30 | GND |
| 31 | DATA CARRIER DETECT (DCD4) | 32 | DATA SET READY (DSR4) |
| 33 | RECEIVE DATA (RXD4) | 34 | REQUEST TO SEND (RTS4) |
| 35 | TRANSMIT DATA (TXD4) | 36 | CLEAR TO SEND (CTS4) |
| 37 | DATA TERMINAL READY (DTR4) | 38 | RING INDICATOR (RI4) |

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 39 | GND | 40 | GND |

Table 3-17: Serial Port Connector Pinouts

3.3.16 SPI Flash Connector

- CN Label:** JSPI1
- CN Type:** 8-pin header (2x4)
- CN Location:** See **Figure 3-17**
- CN Pinouts:** See **Table 3-18**

The 8-pin SPI Flash connector is used to flash the BIOS.

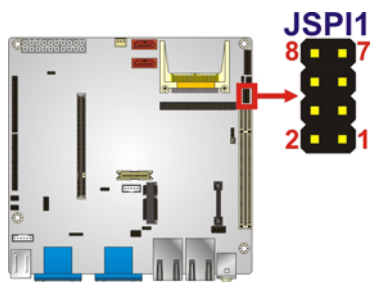


Figure 3-17: SPI Flash Connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | GND |
| 3 | CS# | 4 | CLOCK |
| 5 | SO | 6 | SI |
| 7 | NC | 8 | NC |

Table 3-18: SPI Flash Connector

3.3.17 HDTV Out Connector

- CN Label:** TV1
- CN Type:** 6-pin header (2x3)
- CN Location:** See **Figure 3-18**
- CN Pinouts:** See **Table 3-19**

The HDTV out connector connects to a TV by using S-Video, Composite or Component interfaces.

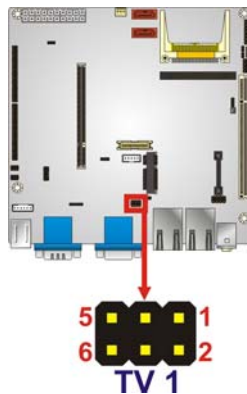


Figure 3-18: TV Connector Pinout Locations

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | TVDAC_B |
| 3 | GND | 4 | TVDAC_C |
| 5 | GND | 6 | TVDAC_A |

Table 3-19: TV Port Connector Pinouts

3.3.18 USB Connectors (Internal)

- CN Label:** USB1_7
- CN Type:** 8-pin header (2x4)
- CN Location:** See **Figure 3-19**
- CN Pinouts:** See **Table 3-20**

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The 2x4 USB pin connector provides connectivity to two USB 1.1 or two USB 2.0 ports. Each USB connector can support two USB devices. Additional external USB ports are found on the rear panel. The USB ports are used for I/O bus expansion.

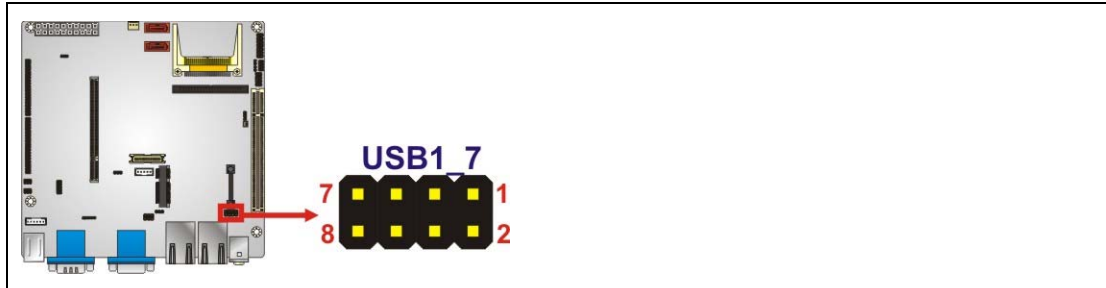


Figure 3-19: USB Connector Pinout Locations

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | VCC | 2 | GND |
| 3 | DATA- | 4 | DATA+ |
| 5 | DATA+ | 6 | DATA- |
| 7 | GND | 8 | VCC |

Table 3-20: USB Port Connector Pinouts

3.4 External Peripheral Interface Connector Panel

The figure below shows the external peripheral interface connector (EPIC) panel. The EPIC panel consists of the following:

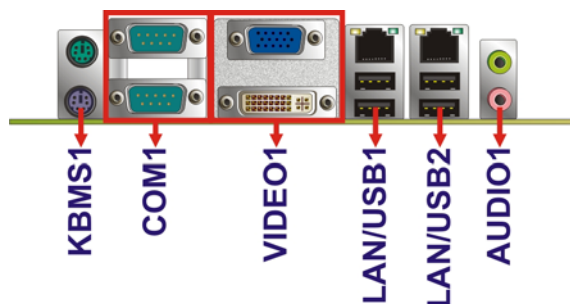


Figure 3-20: External Peripheral Interface Connector

3.4.1 Audio Connector

CN Label: AUDIO1

CN Type: Audio jacks

CN Location: See **Figure 3-20**

The audio jacks connect to external audio devices.

- **Line Out port (Lime):** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- **Microphone (Pink):** Connects a microphone.



Figure 3-21: Audio Connector

3.4.2 DVI Connector

CN Label: DVI1

CN Type: DVI connector

CN Location: See **Figure 3-20**

CN Pinouts: See **Figure 3-22** and **Table 3-21**

The 24-pin Digital Visual Interface (DVI) connector connects to high-speed, high-resolution digital displays. The DVI-I connector supports both digital and analog signals.

| Pin | Description | Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|-----|-------------|
| 1 | TMDS Data2- | 9 | TMDS Data1- | 17 | TMDS Data0- |
| 2 | TMDS Data2+ | 10 | TMDS Data1+ | 18 | TMDS Data0+ |
| 3 | GND | 11 | GND | 19 | GND |
| 4 | N/C | 12 | NC | 20 | NC |

| Pin | Description | Pin | Description | Pin | Description |
|-----|------------------------|-----|-------------|-----|--------------|
| 5 | N/C | 13 | NC | 21 | NC |
| 6 | DDC Clock [SCL] | 14 | PVDD1 | 22 | GND |
| 7 | DDC Data [SDA] | 15 | GND | 23 | TMDS Clock + |
| 8 | Analog vertical sync | 16 | GND | 24 | TMDS Clock - |
| C1 | Analog Red | -- | -- | -- | -- |
| C2 | Analog Green | -- | -- | -- | -- |
| C3 | Analog Blue | -- | -- | -- | -- |
| C4 | Analog Horizontal Sync | -- | -- | -- | -- |
| C5 | Analog GND | -- | -- | -- | -- |

Table 3-21: DVI Connector Pinouts

3.4.3 Keyboard/Mouse Connector

CN Label: KB_MS1

CN Type: Dual PS/2

CN Location: See **Figure 3-20**

CN Pinouts: See **Figure 3-22** and **Table 3-22**

The PS/2 ports are for connecting a PS/2 mouse and a PS/2 keyboard.

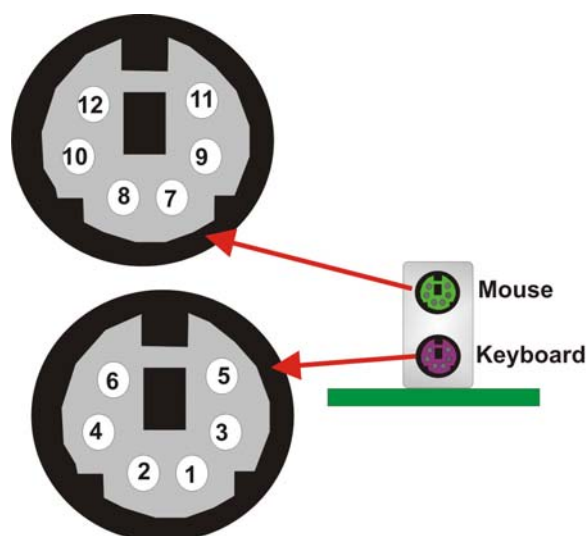


Figure 3-22: PS/2 Pinouts

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | L_KDAT | 7 | L_MDAT |
| 2 | NC | 8 | NC |
| 3 | GND | 9 | GND |
| 4 | 5 V | 10 | 5 V |
| 5 | L_KCLK | 11 | L_MCLK |
| 6 | NC | 12 | NC |

Table 3-22: PS/2 Connector Pinouts

3.4.4 LAN Connector

CN Label: LAN/USB1, LAN/USB2

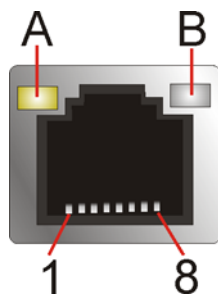
CN Type: RJ-45

CN Location: See **Figure 3-20**

CN Pinouts: See **Table 3-23** and **Figure 3-23**

A 10/100/1000 Mb/s connection can be made to a Local Area Network.

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | MDIA3- | 5 | MDIA1+ |
| 2 | MDIA3+ | 6 | MDIA2+ |
| 3 | MDIA2- | 7 | MDIA0- |
| 4 | MDIA1- | 8 | MDIA0+ |

Table 3-23: Ethernet Connector Pinouts

Figure 3-23: Ethernet Connector

| LED | Description | LED | Description |
|-----|---|-----|--|
| A | on: linked blinking: data is being sent/received | B | off: 10 Mb/s green: 100 Mb/s orange: 1000 Mb/s |

Table 3-24: Connector LEDs

3.4.5 Serial Port Connector (COM1 RS-232)

- CN Label:** COM1 (top)
- CN Type:** DB-9 connectors
- CN Location:** See **Figure 3-20**
- CN Pinouts:** See **Table 3-25** and **Figure 3-24**

The serial port connects to a RS-232 serial communications device.

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | DCD | 6 | DSR |
| 2 | RX | 7 | RTS |
| 3 | TX | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | GND | | |

Table 3-25: Serial Port Pinouts

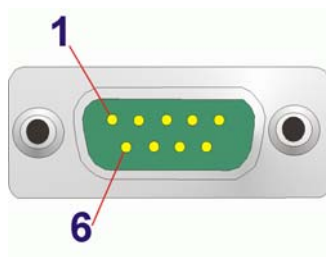


Figure 3-24: Serial Port Pinouts

3.4.6 Serial Port Connectors (COM3 RS-232/422/485)

CN Label: COM1 (bottom)

CN Type: DB-9 connector

CN Location: See **Figure 3-20**

CN Pinouts: See **Table 3-26** and **Figure 3-25**

The pinouts for RS-232, RS-422 and RS-485 communication are shown below.

| Pin | RS-232 | RS-422 | RS-485 |
|-----|--------|--------|--------|
| 1 | DCD | TX- | D- |
| 2 | RX | TX+ | D+ |
| 3 | TX | | |
| 4 | DTR | | |
| 5 | GND | | |
| 6 | DSR | RX- | |
| 7 | RTS | RX+ | |
| 8 | CTS | | |
| 9 | RI | | |

Table 3-26: COM3 Pinouts

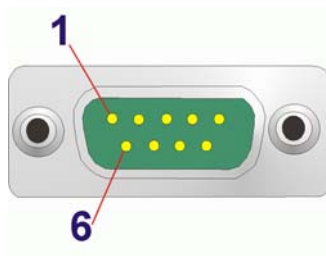


Figure 3-25: Serial Port Pinouts

3.4.7 USB Connector

CN Label: USB_C23, USB_C45

CN Type: USB port

CN Location: See **Figure 3-20**

CN Pinouts: See **Table 3-27**

The USB connector can be connected to a USB device.

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | USBV3L 5 V | 2 | GND |
| 3 | USBP4N | 4 | USBP5P |
| 5 | USBP4P | 6 | USBP5N |
| 7 | GND | 8 | USBV3L 5 V |

Table 3-27: USB Port Pinouts

3.4.8 VGA Connector

CN Label: VGA1

CN Type: 15-pin Female

CN Location: See **Figure 3-20**

CN Pinouts: See **Figure 3-26** and **Table 3-28**

Connects to a monitor that accepts a standard VGA input.

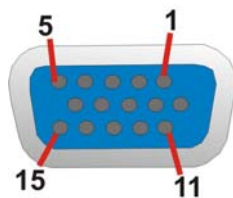


Figure 3-26: VGA Connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | RED | 2 | GREEN |
| 3 | BLUE | 4 | NC |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | VCC / NC | 10 | GND |
| 11 | NC | 12 | DDC DAT |
| 13 | HSYNC | 14 | VSYNC |
| 15 | DDCCLK | | |

Table 3-28: VGA Connector Pinouts

Chapter

4

Installation

4.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the KINO-945GSE3 may result in permanent damage to the KINO-945GSE3 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-945GSE3. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-945GSE3 or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the KINO-945GSE3, place it on an anti-static pad. This reduces the possibility of ESD damaging the KINO-945GSE3.
- ***Only handle the edges of the PCB:*** When handling the PCB, hold the PCB by the edges.

4.2 Installation Considerations



NOTE:

The following installation notices and installation considerations should be read and understood before installation. All installation notices must be strictly adhered to. Failing to adhere to these precautions may lead to severe damage and injury to the person performing the installation.



WARNING:

The installation instructions described in this manual should be carefully followed in order to prevent damage to the components and injury to the user.

Before and during the installation please **DO** the following:

- **Read the user manual:**
 - The user manual provides a complete description of the KINO-945GSE3 installation instructions and configuration options.
- **Wear an electrostatic discharge cuff (ESD):**
 - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- **Place the KINO-945GSE3 on an antistatic pad:**
 - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- **Turn all power to the KINO-945GSE3 off:**
 - When working with the KINO-945GSE3, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the KINO-945GSE3 **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- Allow screws to come in contact with the PCB circuit, connector pins, or its components.

4.2.1 SO-DIMM Installation

To install an SO-DIMM, please follow the steps below and refer to Figure 4-1.

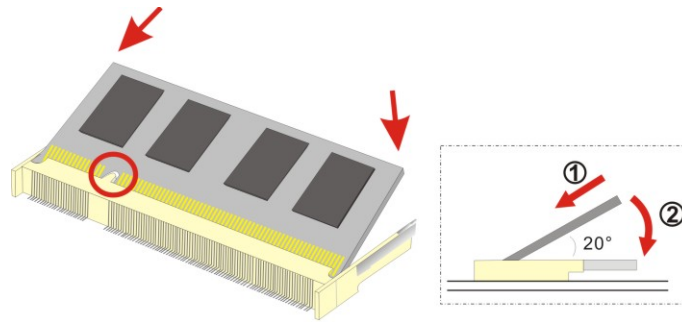


Figure 4-1: SO-DIMM Installation

- Step 1:** Locate the **SO-DIMM socket**. Place the board on an anti-static mat.
- Step 2:** Align the **SO-DIMM with the socket**. Align the notch on the memory with the notch on the memory socket.
- Step 3:** Insert the **SO-DIMM**. Push the memory in at a 20° angle. (See Figure 4-1)
- Step 4:** **Seat the SO-DIMM**. Gently push downwards and the arms clip into place. (See Figure 4-1)

4.2.2 CompactFlash® Installation



NOTE:

Both CompactFlash® Type I and Type II cards are supported.

To install the CompactFlash® card, please follow the steps below.

- Step 1:** Locate the **CF card socket**. Locate the CompactFlash® slot.
- Step 2:** Align the **CF card**. Align the CompactFlash® card. The label side should be facing away from the board. The grooves on the CompactFlash® slot ensure that the card cannot be inserted the wrong way.
- Step 3:** Insert the **CF card**. Push until the CompactFlash® card is firmly seated in the slot. See Figure 4-2.

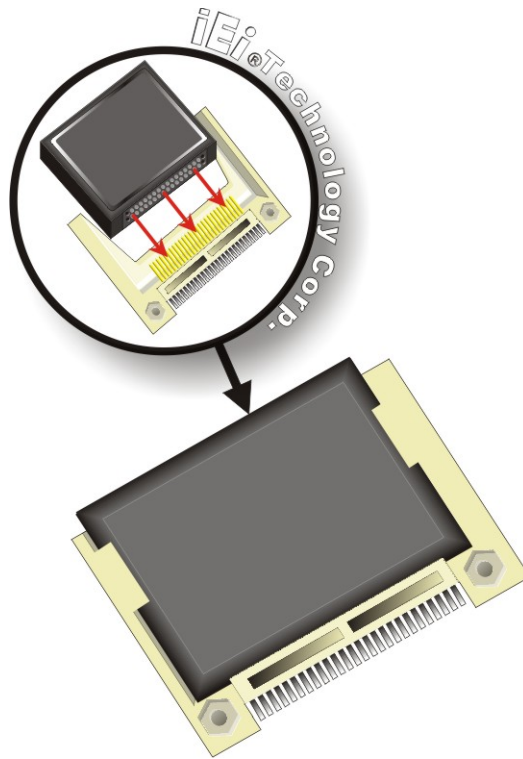


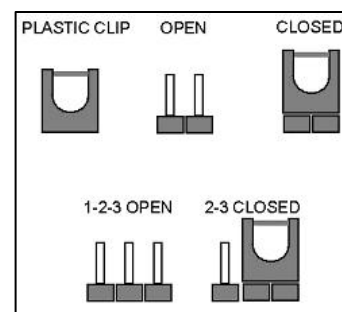
Figure 4-2: CompactFlash® Card Installation

4.3 Jumper Settings



NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



The hardware jumpers must be set before installation. Jumpers are shown in Table 4-1.

| Description | Label | Type |
|------------------------------------|-------------|--------------|
| AT power mode setting | ATXCTL1 | 2-pin header |
| AT/ATX power supply type | J_PSON1 | 3-pin header |
| CF card setup | J_CF1 | 2-pin header |
| Clear CMOS | J_CMOS1 | 3-pin header |
| COM2 RS-232/4222/485 mode select | JP1, JP2 | 6-pin header |
| LVDS voltage selection | J_VLVDS1 | 3-pin header |
| LVDS1 panel resolution mode select | J_LCD_TYPE1 | 8-pin header |
| USB power supply type setting | J_USBP1 | 3-pin header |

Table 4-1: Jumpers

4.3.1 AT Power Select Jumper Settings


NOTE:

The AT Power Select Jumper is the same as the ATX Enable connector.

| | |
|-------------------------|-----------------------|
| Jumper Label: | ATXCTL1 |
| Jumper Type: | 2-pin header |
| Jumper Settings: | See Table 4-2 |
| Jumper Location: | See Figure 4-3 |

The AT Power Select jumper specifies the system's power mode as AT or ATX.

| AT Power Select | Description | |
|-----------------|---------------|---------|
| Open | Use ATX power | Default |
| Short | Use AT power | |

Table 4-2: AT Power Select Jumper Settings

The location of the AT Power Select jumper is shown in **Figure 4-3** below.

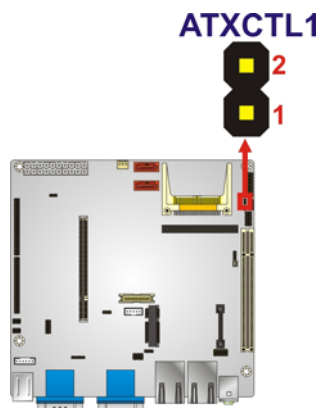


Figure 4-3: AT Power Select Jumper Location

4.3.2 AT/ATX Power Supply Type Jumper

- Jumper Label: J_PSON1
- Jumper Type: 3-pin header
- Jumper Settings: See Table 4-3
- Jumper Location: See Figure 4-4

The AT/ATX Power Supply Type jumper specifies the systems power mode as AT or ATX.

| Setting | Description |
|-----------|---------------|
| Short 1-2 | Use ATX power |
| Short 2-3 | Use AT power |

Table 4-3: AT/ATX Power Supply Type Jumper Settings

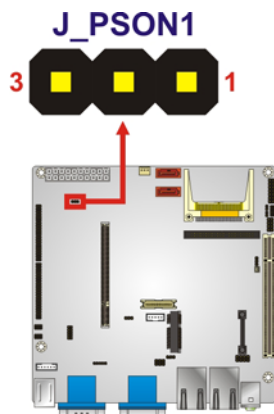


Figure 4-4: AT/ATX Power Mode Jumper Location

4.3.3 CF Card Setup

| | |
|-------------------------|-----------------------|
| Jumper Label: | J_CF1 |
| Jumper Type: | 2-pin header |
| Jumper Settings: | See Table 4-4 |
| Jumper Location: | See Figure 4-5 |

The CompactFlash® slot is connected through an IDE connection. This jumper sets the CompactFlash® card as the master or slave IDE device.

| Setting | Description |
|---------|-------------|
| Open | Slave |
| Closed | Master |

Table 4-4: CompactFlash® Setup Jumper Settings

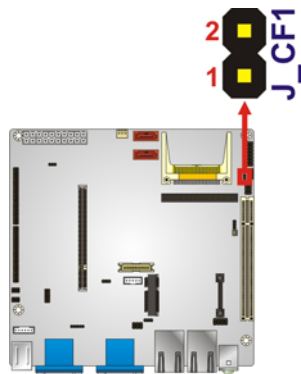


Figure 4-5: CompactFlash® Setup Jumper Location

4.3.4 Clear CMOS Jumper

| | |
|-------------------------|-----------------------|
| Jumper Label: | J_CMOS1 |
| Jumper Type: | 3-pin header |
| Jumper Settings: | See Table 4-5 |
| Jumper Location: | See Figure 4-6 |

If the KINO-945GSE3 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu. The clear CMOS jumper settings are shown in **Table 4-5**.

| AT Power Select | Description | |
|-----------------|------------------|---------|
| Short 1 - 2 | Keep CMOS Setup | Default |
| Short 2 - 3 | Clear CMOS Setup | |

Table 4-5: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 4-6** below.

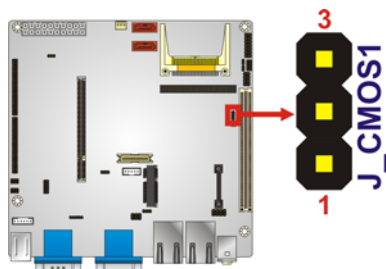


Figure 4-6: Clear CMOS Jumper

4.3.5 COM2 Function Select Jumper

| | |
|-------------------------|-----------------------|
| Jumper Label: | JP1, JP2 |
| Jumper Type: | 6-pin header |
| Jumper Settings: | See Table 4-6 |
| Jumper Location: | See Figure 4-7 |

The COM2 Function Select jumper sets the communication protocol used by the second serial communications port (COM2) as RS-232, RS-422 or RS-485. The COM2 Function Select settings are shown in **Table 4-6**.

| JP1 COM2 Function Select | Description | |
|---------------------------------|-------------|---------|
| Short 1-2 | RS-232 | Default |
| Short 3-4 | RS-422 | |
| Short 5-6 | RS-485 | |
| JP2 COM2 Function Select | | |
| Short 1-2, 3-4 | RS-422 | |
| Short 3-5, 2-6 | RS-485 | |

Table 4-6: JP1, JP2 COM2 Function Select Jumper Settings

The COM2 Function Select jumper location is shown in **Figure 4-7**.

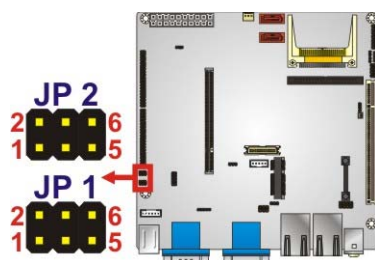


Figure 4-7: COM2 Function Select Jumper Location

4.3.6 LVDS1 Panel Resolution Jumper

| | |
|-------------------------|-----------------------|
| Jumper Label: | J_LCD_TYPE1 |
| Jumper Type: | 8-pin header |
| Jumper Settings: | See Table 4-7 |
| Jumper Location: | See Figure 4-8 |

The LVDS1 Panel Resolution jumper allows the resolution of the LVDS screens connected to the LVDS1 connector to be configured. The LVDS1 Panel Resolution jumper settings are shown in **Table 4-7**.

| DESCRIPTION (LVDS1) | | | | |
|---------------------|---------|---------|---------|----------------------------|
| Pin 1-2 | Pin 3-4 | Pin 5-6 | Pin 7-8 | Resolution |
| OPEN | OPEN | OPEN | SHORT | 640 x 480 (18-bit) |
| SHORT | OPEN | OPEN | OPEN | 800 x 480 (18-bit) |
| OPEN | SHORT | OPEN | OPEN | 800 x 600 (18-bit) Default |
| SHORT | SHORT | OPEN | OPEN | 1024 x 768 (18-bit) |
| OPEN | OPEN | SHORT | OPEN | 1280 x 1024 (36-bit) |
| SHORT | OPEN | SHORT | OPEN | 1400 x 1050 (36-bit) |
| OPEN | SHORT | SHORT | OPEN | 1440 x 900 (36-bit) |
| SHORT | SHORT | SHORT | OPEN | 1600 x 1200 (36-bit) |

Table 4-7: LVDS Panel Resolution Jumper Settings

The LVDS Panel Resolution jumper location is shown in **Figure 4-8**.

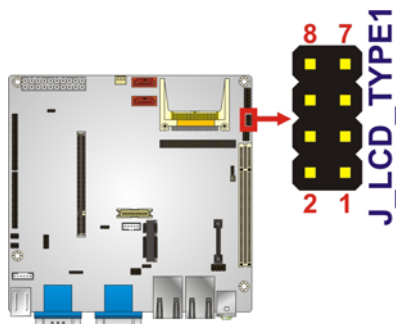


Figure 4-8: LVDS Panel Resolution Jumper Pinout Locations

4.3.7 LVDS Voltage Selection



WARNING:

Permanent damage to the screen and KINO-945GSE3 may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that came with the monitor to select the correct voltage.

| | |
|-------------------------|-----------------------|
| Jumper Label: | J_VLVDS1 |
| Jumper Type: | 3-pin header |
| Jumper Settings: | See Table 4-8 |
| Jumper Location: | See Figure 4-9 |

The **LVDS Voltage Selection** jumpers allow the LVDS screen voltages to be set. J_VLVDS1 sets the voltage connected to LVDS1. The **LVDS Voltage Selection** jumper settings are shown in **Table 4-8**.

| LCD Voltage Select | Description | |
|--------------------|-------------|---------|
| Short 1-2 | +3.3V LVDS | |
| Short 2-3 | +5V LVDS | Default |

Table 4-8: LVDS Voltage Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 4-9**.

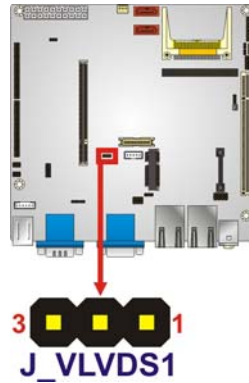


Figure 4-9: LVDS Voltage Selection Jumper Pinout Locations

4.3.8 USB Power Supply Type Setting

| | |
|-------------------------|-----------------------|
| Jumper Label: | J_USBP1 |
| Jumper Type: | 3-pin header |
| Jumper Settings: | See Table 4-8 |
| Jumper Location: | See Figure 4-9 |

The **USB Power Supply Type Setting** jumper allows the USB port voltages to be set. J_USBP1 sets the voltage connected to USB. The **USB Power Supply Type Setting** jumper settings are shown in **Table 4-8**.

| LCD Voltage Select | Description | |
|--------------------|-------------|---------|
| Short 1-2 | VCC5DUAL | |
| Short 2-3 | VCC5 | Default |

Table 4-9: USB Power Supply Type Setting

The USB Power Supply Type Setting jumper location is shown in **Figure 4-9**.

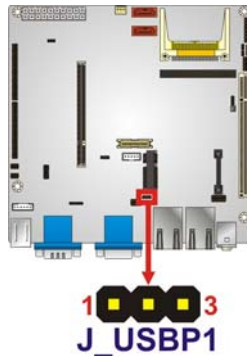


Figure 4-10: USB Power Supply Type Setting Jumper Pinout Locations

4.4 Chassis Installation

4.4.1 Airflow



WARNING:

Airflow is critical for keeping components within recommended operating temperatures. The chassis should have fans and vents as necessary to keep things cool.

The KINO-945GSE3 must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply unit, the cooling fan of a power supply can also help generate airflow through the board surface.

4.4.2 Motherboard Installation

To install the KINO-945GSE3 motherboard into the chassis please refer to the reference material that came with the chassis.

4.5 Internal Peripheral Device Connections

This section outlines the installation of peripheral devices to the onboard connectors.

4.5.1 Four Serial Port Connector

The 40-pin serial port connector connects the board connector to four DB-9 connectors. To install, please follow the steps below.

Step 4: **Locate the COM connector.** The locations of the COM port connectors are shown in Chapter 4.

Step 5: **Insert the cable connector.** Align the cable connector with the onboard connector. Make sure pin 1 on the board and connector line up.

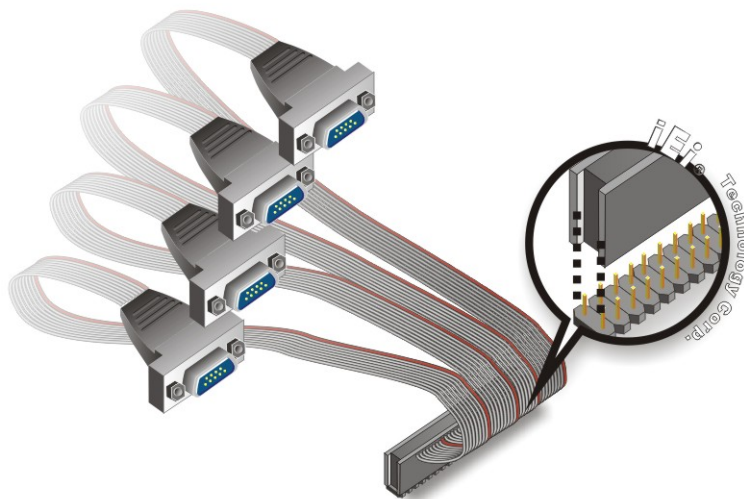


Figure 4-11: Four Serial Port Connector

Step 6: **Secure the serial ports to the chassis.** Tighten the screws on the DB-9 connectors to secure them to the chassis.

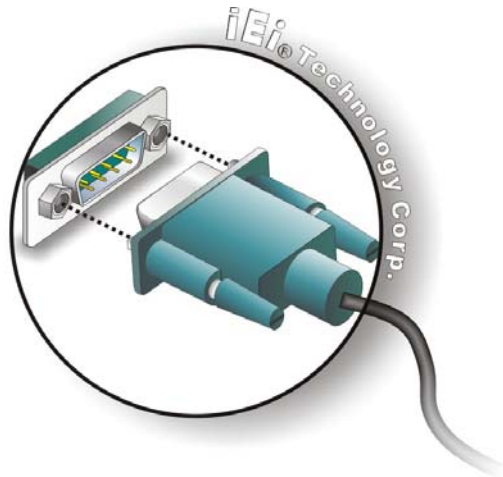


Figure 4-12: Serial Device Connector

4.5.2 SATA Drive Connection

The KINO-945GSE3 is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

Step 1: Locate the connectors. The locations of the SATA drive connectors are shown in **Chapter 3**.

Step 2: Insert the cable connector. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the on-board SATA drive connector. See Figure 4-13.

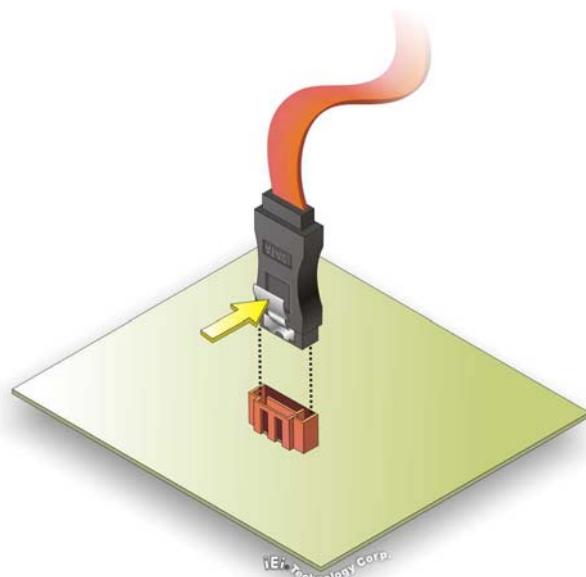


Figure 4-13: SATA Drive Cable Connection

- Step 3:** **Connect the cable to the SATA disk.** Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See Figure 4-14.
- Step 4:** **Connect the SATA power cable.** Connect the SATA power connector to the back of the SATA drive. See Figure 4-14.

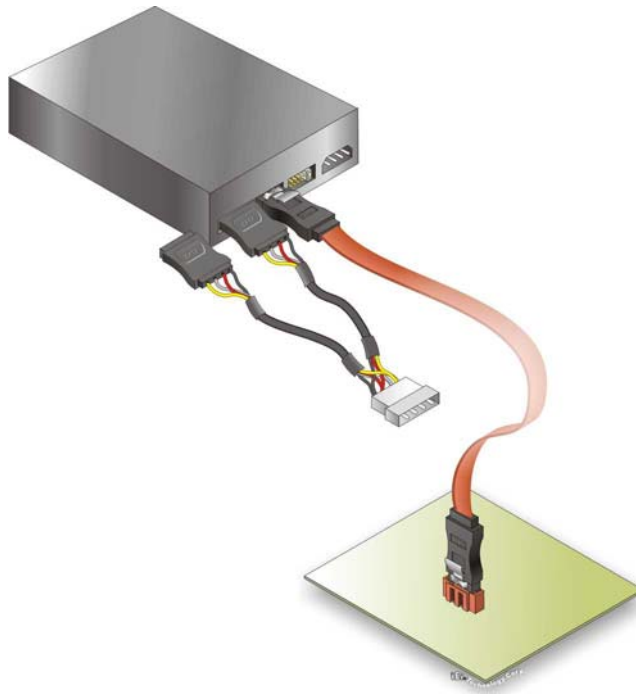


Figure 4-14: SATA Power Drive Connection

4.6 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- DVI monitors
- RJ-45 Ethernet cable connectors
- PS/2 keyboard/mouse
- Serial port devices
- USB devices
- VGA monitors

To install these devices, connect the corresponding cable connector from the actual device to the corresponding KINO-945GSE3 external peripheral interface connector making sure the pins are properly aligned.

4.6.1 DVI Display Device Connection

The KINO-945GSE3 has a single female DVI-D connector on the external peripheral interface panel. The DVI-D connector is connected to a digital display device. To connect a digital display device to the KINO-945GSE3, please follow the instructions below.

Step 5: Locate the DVI-D connector. The location of the DVI-D connector is shown in another chapter.

Step 6: Align the DVI-D connector. Align the male DVI-D connector on the digital display device cable with the female DVI-D connector on the external peripheral interface.

Step 7: Insert the DVI-D connector Once the connectors are properly aligned with the male connector, insert the male connector from the digital display device into the female connector on the KINO-945GSE3. See Figure 4-15.

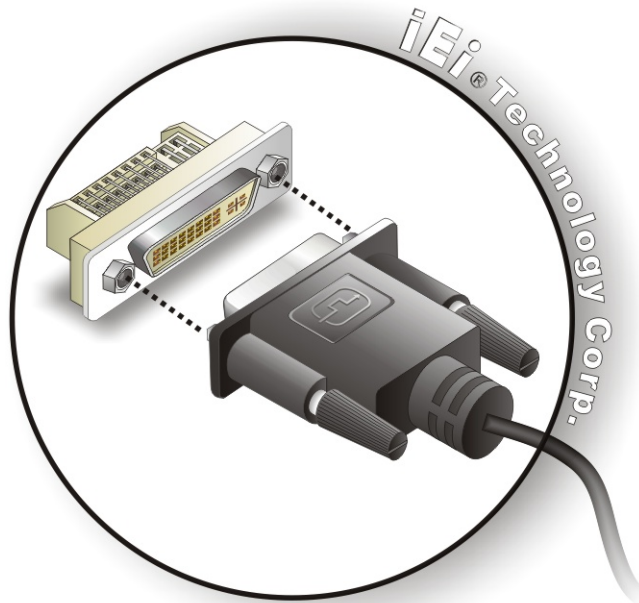


Figure 4-15: DVI Connector

Step 8: Secure the connector. Secure the DVI-D connector from the digital display device to the external interface by tightening the two retention screws on either side of the connector.

4.6.2 LAN Connection (Single Connector)

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors.** The locations of the USB connectors are shown in **Chapter 4**.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the KINO-945GSE3. See Figure 4-16.

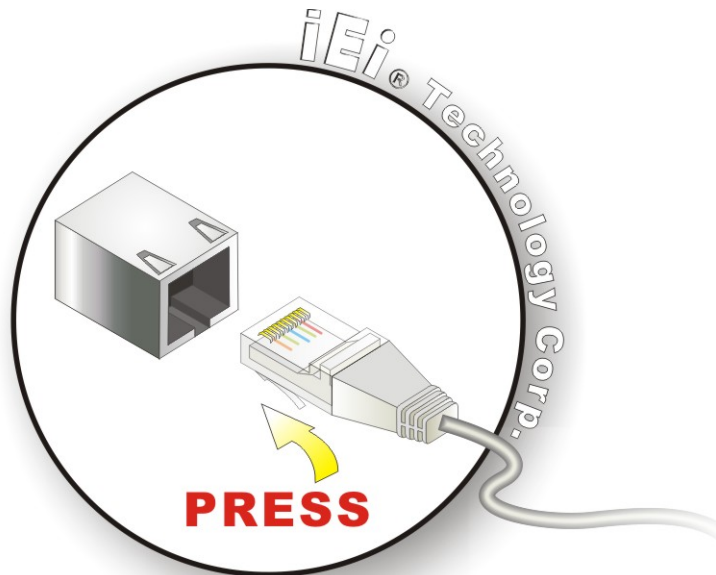


Figure 4-16: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

4.6.3 PS/2 Keyboard and Mouse Connection

The KINO-945GSE3 has a dual PS/2 connector on the external peripheral interface panel. The dual PS/2 connector is used to connect to a keyboard and mouse to the system. Follow the steps below to connect a keyboard and mouse to the KINO-945GSE3.

KINO-945GSE3 User Manual

Step 1: **Locate the dual PS/2 connector.** The location of the dual PS/2 connector is shown in **Chapter 3**.

Step 2: **Insert the keyboard/mouse connector.** Insert a PS/2 keyboard or mouse connector into the appropriate PS/2 connector on the external peripheral interface connector. See Figure 4-17.

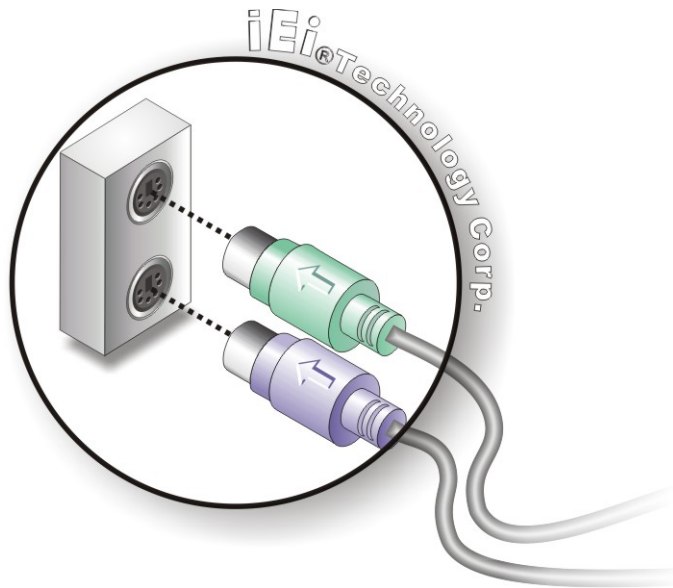


Figure 4-17: PS/2 Keyboard/Mouse Connector

4.6.4 Serial Device Connection

The KINO-945GSE3 has two female DB-9 connectors (one for RS-232 and one for RS-232/422/485) on the external peripheral interface panel for a serial device. Follow the steps below to connect a serial device to the KINO-945GSE3.

Step 3: **Locate the DB-9 connector.** The location of the DB-9 connector is shown in **Chapter 3**.

Step 4: **Insert the serial connector.** Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See Figure 4-18.

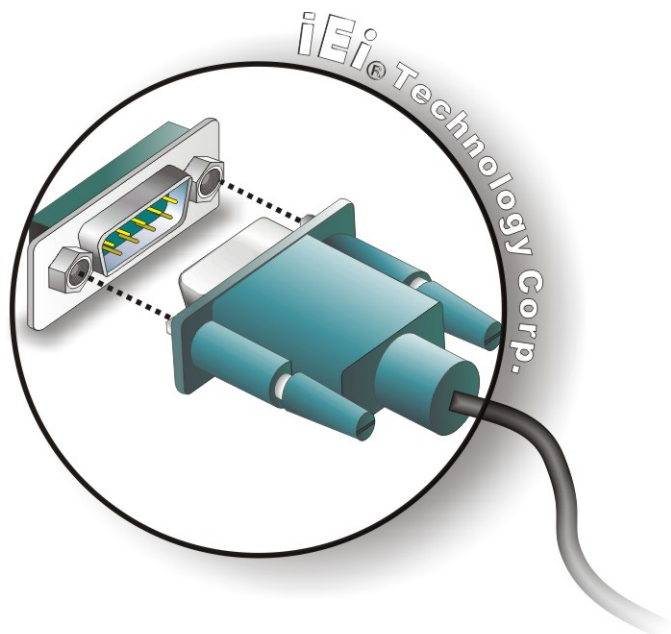


Figure 4-18: Serial Device Connector

Step 5: Secure the connector. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

4.6.5 USB Connection (Dual Connector)

The external USB Series "A" receptacle connectors provide easier and quicker access to external USB devices. Follow the steps below to connect USB devices to the KINO-945GSE3.

Step 1: Locate the USB Series "A" receptacle connectors. The location of the USB Series "A" receptacle connectors are shown in **Chapter 3**.

Step 2: Insert a USB Series "A" plug. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See Figure 4-19.

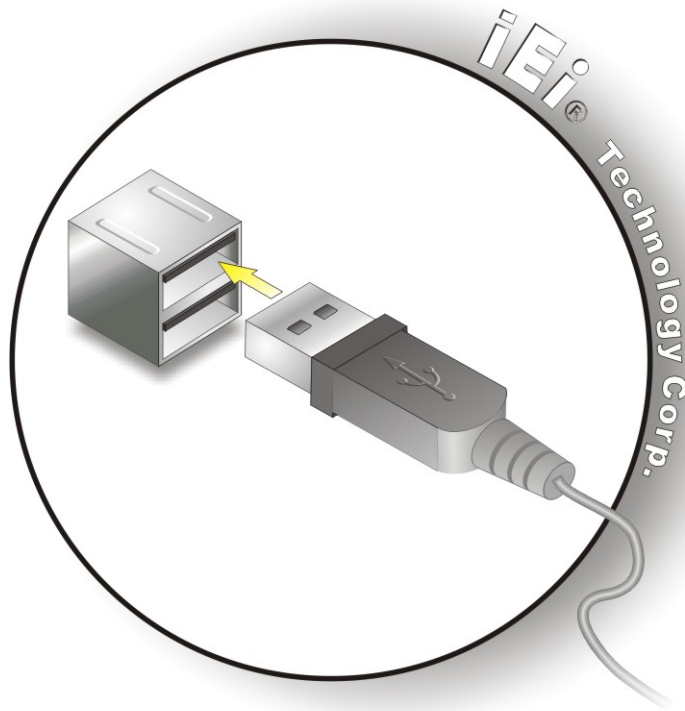


Figure 4-19: USB Connector

4.6.6 VGA Monitor Connection

The KINO-945GSE3 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the KINO-945GSE3, please follow the instructions below.

- Step 3: Locate the female DB-15 connector.** The location of the female DB-15 connector is shown in **Chapter 3**.
- Step 4: Align the VGA connector.** Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.
- Step 5: Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the KINO-945GSE3. See Figure 4-20.

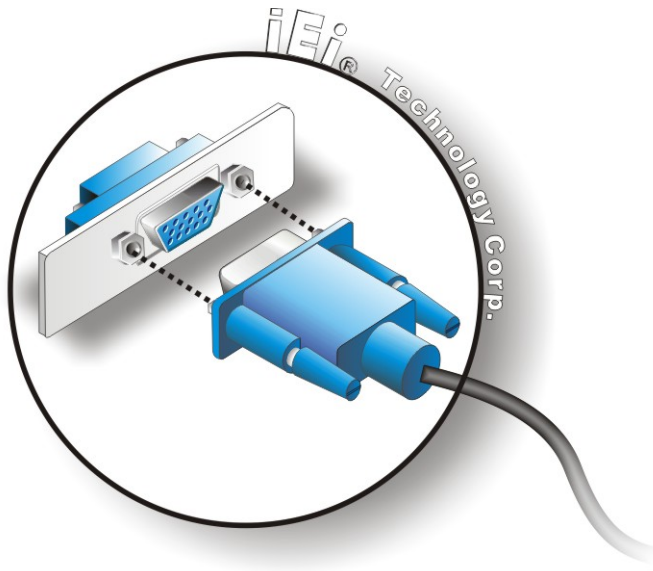


Figure 4-20: VGA Connector

Step 6: **Secure the connector.** Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

4.7 Software Installation

All the drivers for the KINO-945GSE3 are on the CD that came with the system. To install the drivers, please follow the steps below.

Step 1: Insert the CD into a CD drive connected to the system.



NOTE:

If the installation program doesn't start automatically:
Click "Start->My Computer->CD Drive->autorun.exe"

Step 2: The driver main menu appears (**Figure 4-21**).

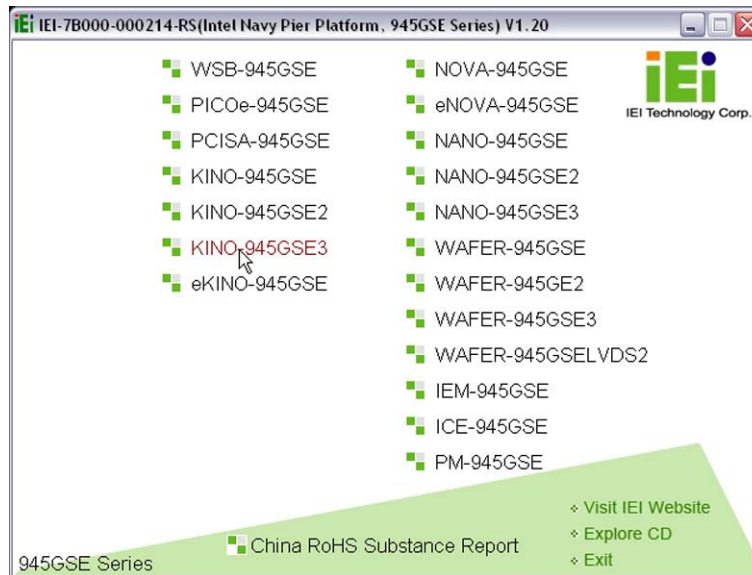


Figure 4-21: Introduction Screen

Step 3: Click **KINO-945GSE3**.

Step 4: A new screen with a list of available drivers appears (**Figure 4-22**).

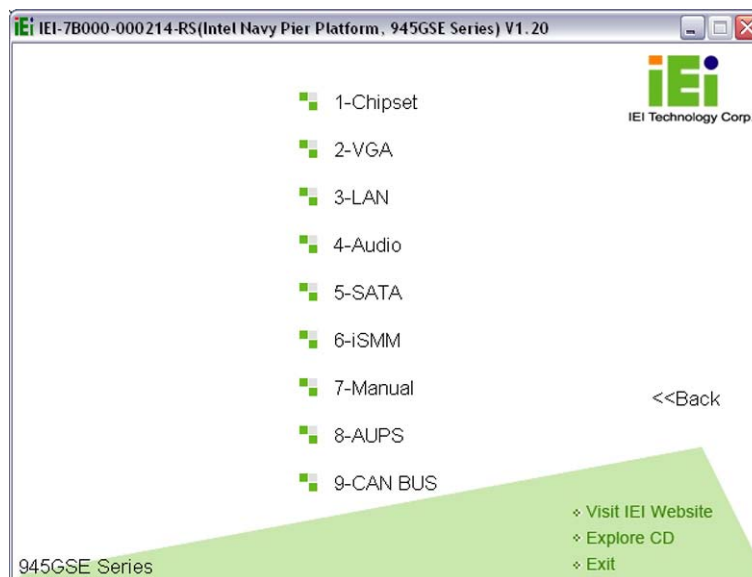


Figure 4-22: Available Drivers

Step 5: Install all of the necessary drivers in this menu.

Chapter

5

BIOS Screens

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

5.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the “**Press Del to enter SETUP**” message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **Esc** to quit. Navigation keys are shown in.

| Key | Function |
|-------------|--|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| Esc key | Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| Page Up key | Increase the numeric value or make changes |
| Page Dn key | Decrease the numeric value or make changes |
| F1 key | General help, only for Status Page Setup Menu and Option Page Setup Menu |

| Key | Function |
|------------|--|
| F2 /F3 key | Change color from total 16 colors. F2 to select color forward. |
| F10 key | Save all the CMOS changes, only for Main Menu |

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

5.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter 5.

5.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

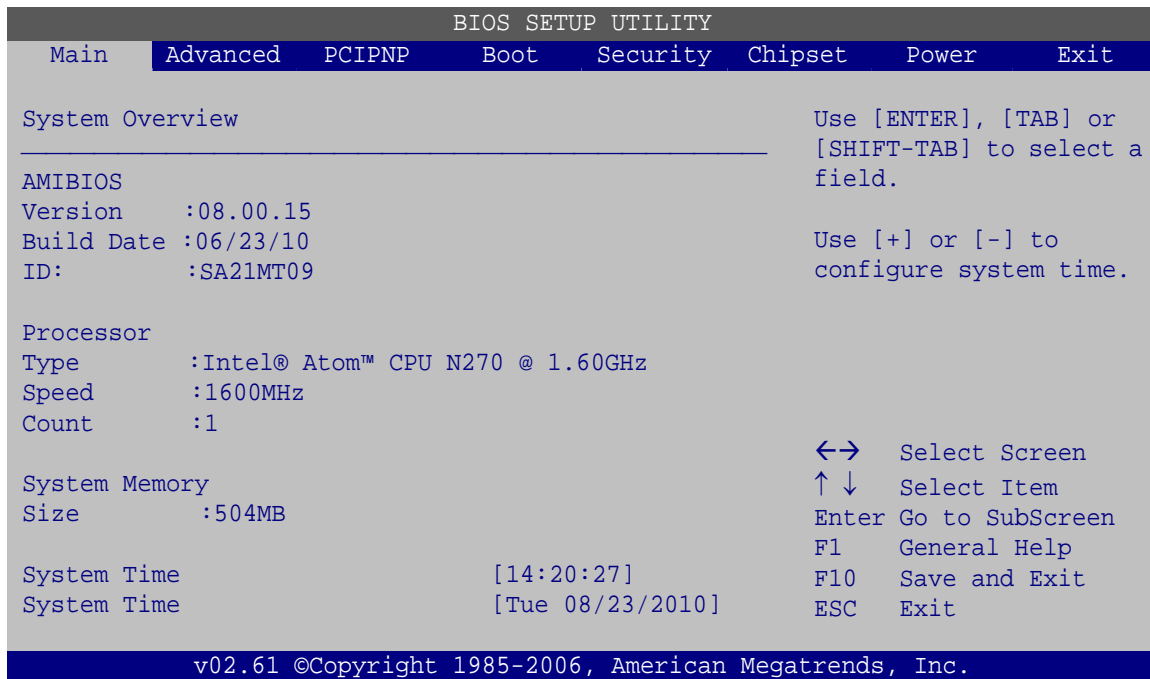
- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- PCIPnP – Changes the advanced PCI/PnP Settings
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Chipset – Changes the chipset settings.
- Power – Changes power management settings.
- Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

→ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- AMI BIOS: Displays auto-detected BIOS information
 - **Version:** Current BIOS version
 - **Build Date:** Date the current BIOS version was made
 - **ID:** Installed BIOS ID
- Processor: Displays auto-detected CPU specifications
 - **Type:** Names the currently installed processor
 - **Speed:** Lists the processor speed
 - **Count:** The number of CPUs on the motherboard
- System Memory: Displays the auto-detected system memory.
 - **Size:** Lists memory size

The System Overview field also has two user configurable fields:

→ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

→ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

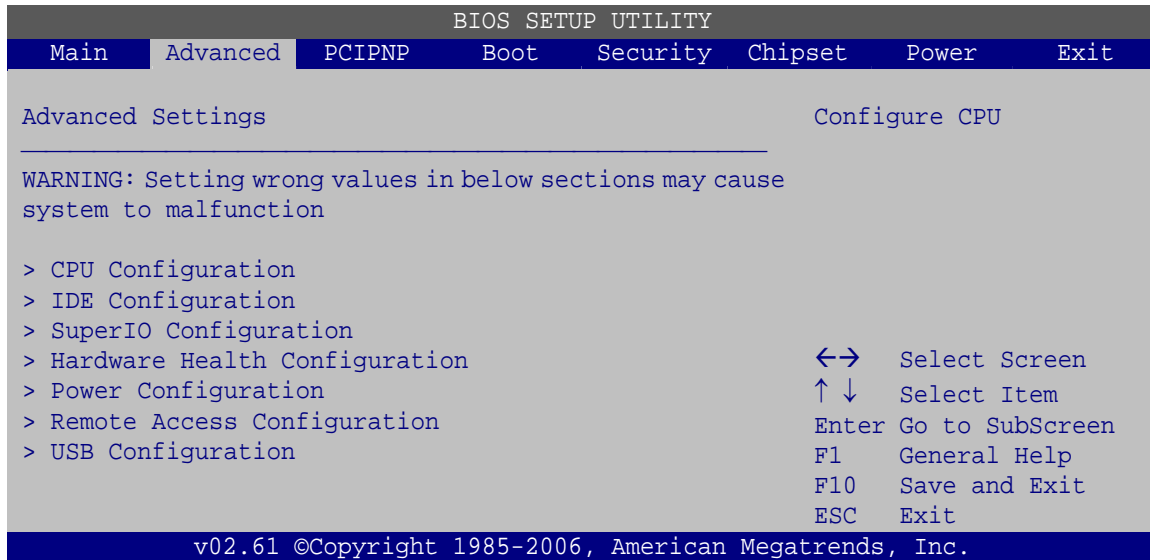


WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

-
- CPU Configuration (see **Section 5.3.1**)
 - IDE Configuration (see **Section 5.3.2**)
 - Super IO Configuration (see **Section 5.3.3**)
 - Hardware Health Configuration (see **Section**)
 - Power Configuration (see **Section 5.3.5**)
 - Remote Access Configuration (see **Section**)
 - USB Configuration (see **Section 5.3.8**)

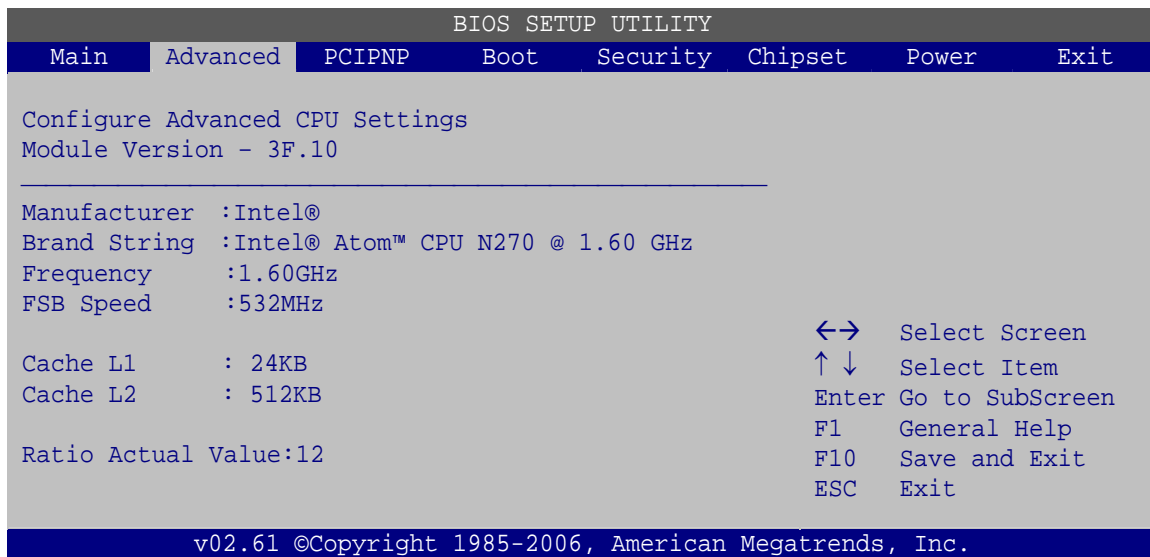
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BIOS Menu 2: Advanced

5.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



BIOS Menu 3: CPU Configuration

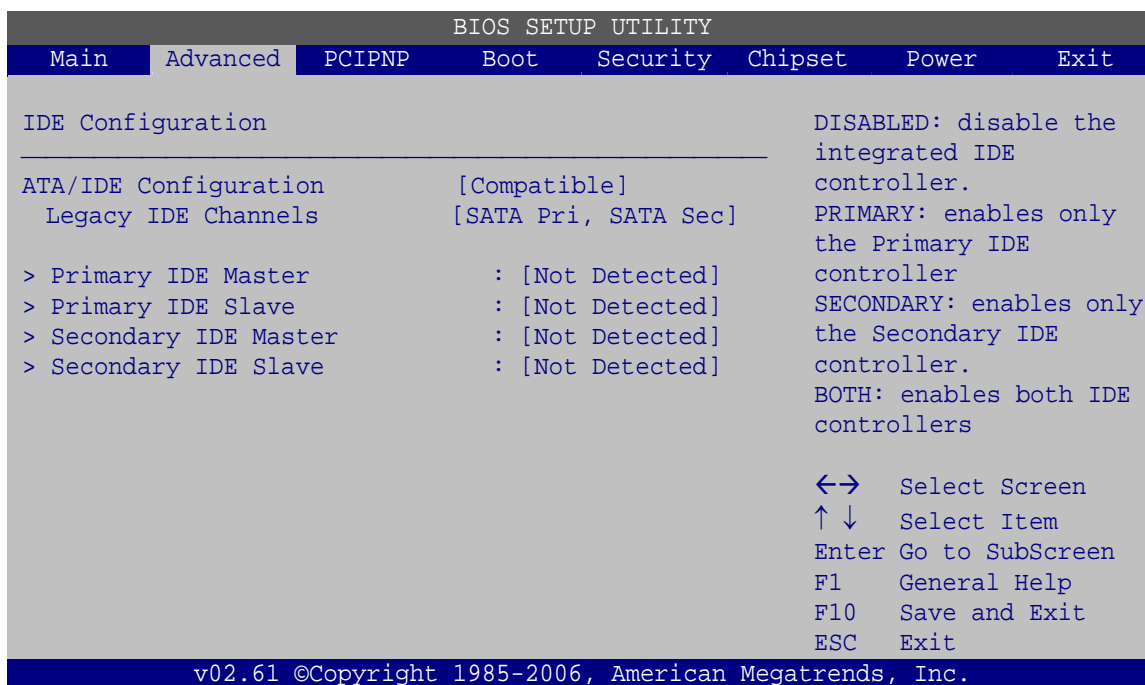
The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- Manufacturer: Lists the name of the CPU manufacturer
- Brand String: Lists the brand name of the CPU being used

- Frequency: Lists the CPU processing speed
- FSB Speed: Lists the FSB speed
- Cache L1: Lists the CPU L1 cache size
- Cache L2: Lists the CPU L2 cache size

5.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

→ ATA/IDE Configurations [Compatible]

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

- **Disabled** Disables the on-board ATA/IDE controller.
- **Compatible** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

- ➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [PATA Pri, SATA Sec]**

- ➔ **SATA Only** Only the SATA drives are enabled.
- ➔ **PATA Pri, SATA Sec** **DEFAULT** The IDE drives are enabled on the Primary IDE channel. The SATA drives are enabled on the Secondary IDE channel.
- ➔ **PATA Pri., PATA Sec** The IDE drives are enabled on the primary and secondary IDE channels. SATA drives are disabled.

➔ **IDE Master and IDE Slave**

When entering setup, BIOS automatically detects the presence of IDE devices. BIOS displays the status of the automatically detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 5.3.2.1** appear.

➔ **Hard Disk Write Protect [Disabled]**

Use the **Hard Disk Write Protect** BIOS option to protect the hard disks from being overwritten. This menu item is only effective if the device is accessed through the BIOS.

- | | | | |
|---|-----------------|----------------|--|
| ➔ | Disabled | DEFAULT | Allows hard disks to be overwritten |
| ➔ | Enabled | | Prevents hard disks from being overwritten |

➔ IDE Detect Time Out (Sec) [35]

Use the **IDE Detect Time Out (Sec)** BIOS to specify the maximum time (in seconds) the AMI BIOS can search for IDE devices. This allows fine-tuning of the settings to allow for faster boot times. The following configuration options are available.

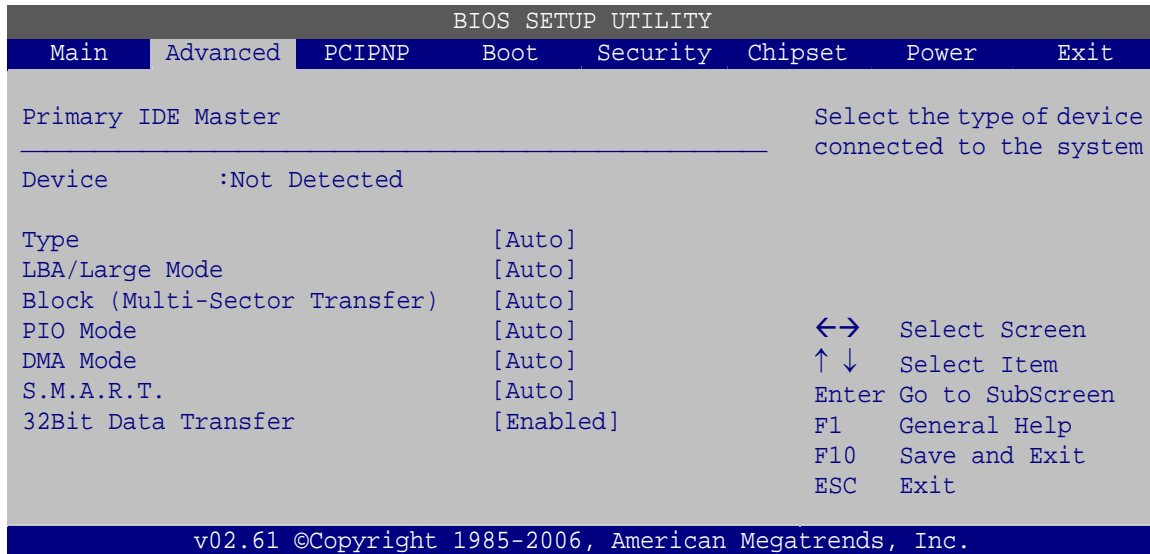
- 0 seconds
- 5 seconds **DEFAULT**
- 10 seconds
- 15 seconds
- 20 seconds
- 25 seconds
- 30 seconds
- 35 seconds

The best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the AMIBIOS is “0 seconds” and a large majority of ultra ATA hard disk drives can be detected well within “5 seconds”.

5.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.

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BIOS Menu 5: IDE Master and IDE Slave Configuration

→ Auto-Detected Drive Parameters

The “grayed-out” items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- PIO Mode: Indicates the PIO mode of the installed device.
- Async DMA: Indicates the highest Asynchronous DMA Mode that is supported.
- Ultra DMA: Indicates the highest Synchronous DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.

- 32Bit Data Transfer: Enables 32-bit data transfer.

→ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

- | | | | |
|---|----------------------|----------------|---|
| → | Not Installed | | BIOS is prevented from searching for an IDE disk drive on the specified channel. |
| → | Auto | DEFAULT | The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel. |
| → | CD/DVD | | The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel. |
| → | ARMD | | This option specifies an ATAPI Removable Media Device. These include, but are not limited to: ZIP LS-120 |

→ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

- | | | | |
|---|-----------------|----------------|---|
| → | Disabled | | BIOS is prevented from using the LBA mode control on the specified channel. |
| → | Auto | DEFAULT | BIOS auto detects the LBA mode control on the specified channel. |

→ Block (Multi Sector Transfer) [Auto]

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

- **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.
- **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

→ PIO Mode [Auto]

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

- **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
- **0** PIO mode 0 selected with a maximum transfer rate of 3.3 MB/s
- **1** PIO mode 1 selected with a maximum transfer rate of 5.2 MB/s
- **2** PIO mode 2 selected with a maximum transfer rate of 8.3 MB/s
- **3** PIO mode 3 selected with a maximum transfer rate of 11.1 MB/s
- **4** PIO mode 4 selected with a maximum transfer rate of 16.6 MB/s
(This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

→ DMA Mode [Auto]

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

| | | | |
|---|--------|---------|---|
| → | Auto | DEFAULT | BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined. |
| → | SWDMA0 | | Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1 MB/s |
| → | SWDMA1 | | Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2 MB/s |
| → | SWDMA2 | | Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3 MB/s |
| → | MWDMA0 | | Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2 MB/s |
| → | MWDMA1 | | Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3 MB/s |
| → | MWDMA2 | | Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6 MB/s |
| → | UDMA0 | | Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6 MB/s |
| → | UDMA1 | | Ultra DMA mode 1 selected with a maximum data transfer rate of 25 MB/s |
| → | UDMA2 | | Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3 MB/s |
| → | UDMA3 | | Ultra DMA mode 3 selected with a maximum data transfer rate of 44 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.) |
| → | UDMA4 | | Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.) |
| → | UDMA5 | | Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.) |

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→ S.M.A.R.T [Auto]

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

- **Auto** **DEFAULT** BIOS auto detects HDD SMART support.
- **Disabled** Prevents BIOS from using the HDD SMART feature.
- **Enabled** Allows BIOS to use the HDD SMART feature

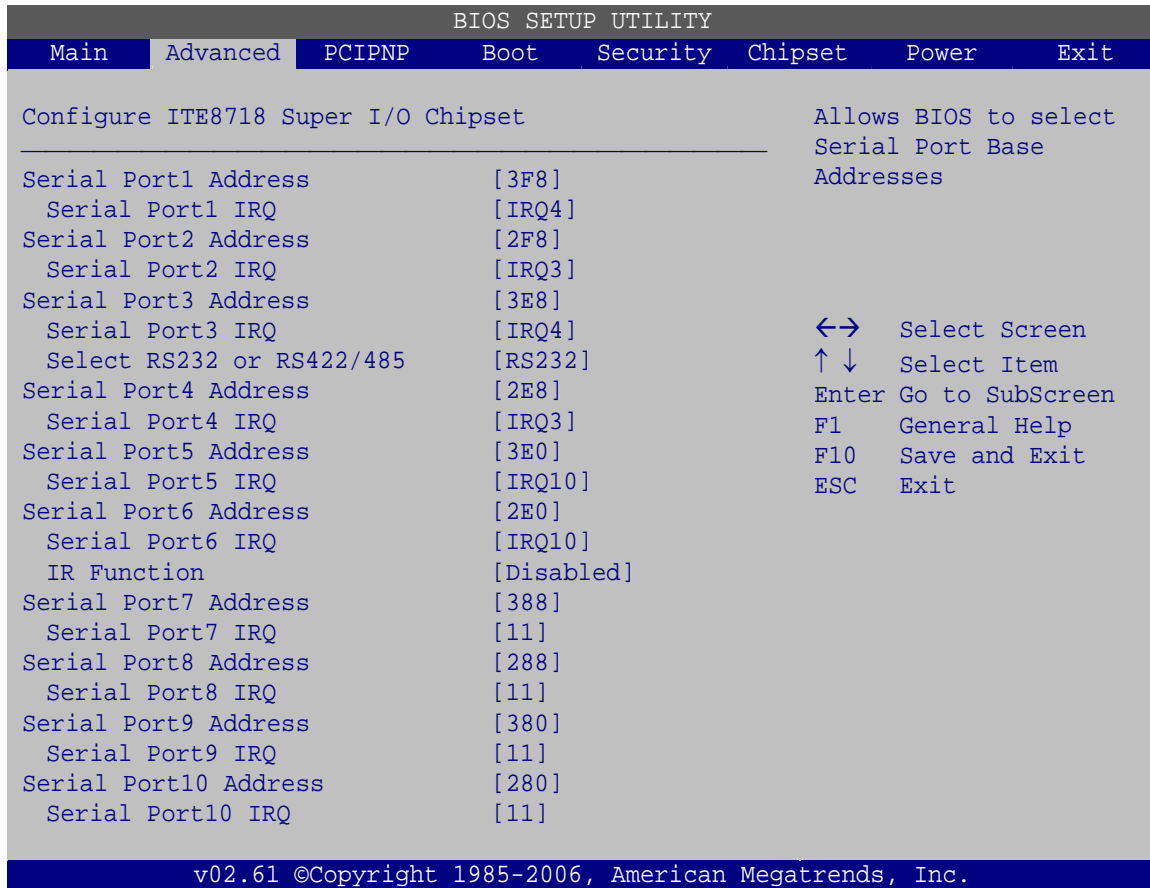
→ 32Bit Data Transfer [Enabled]

Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

- **Disabled** Prevents the BIOS from using 32-bit data transfers.

5.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ Serial Port1 Address [3F8]

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

- | | | |
|---|---------------------------|--|
| ➔ | Disabled | No base address is assigned to Serial Port 1 |
| ➔ | 3F8 DEFAULT | Serial Port 1 I/O port address is 3F8. |
| ➔ | 2F8 | Serial Port 1 I/O port address is 2F8 |
| ➔ | 3E8 | Serial Port 1 I/O port address is 3E8. |
| ➔ | 2E8 | Serial Port 1 I/O port address is 2E8. |
| ➔ | 3E0 | Serial Port 1 I/O port address is 3E0. |
| ➔ | 2E0 | Serial Port 1 I/O port address is 2E0. |

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→ Serial Port1 IRQ [IRQ4]

Use the **Serial Port1 IRQ** option to select the interrupt address for serial port 1.

- **IRQ3** Serial port 1 IRQ address is 3.
- **IRQ4** **DEFAULT** Serial port 1 IRQ address is 4.
- **IRQ10** Serial port 1 IRQ address is 10.

→ Serial Port2 Address [2F8]

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- **Disabled** No base address is assigned to Serial Port 2
- **3F8** Serial Port 2 I/O port address is 3F8.
- **2F8** **DEFAULT** Serial Port 2 I/O port address is 2F8
- **3E8** Serial Port 2 I/O port address is 3E8.
- **2E8** Serial Port 2 I/O port address is 2E8.
- **3E0** Serial Port 2 I/O port address is 3E0.
- **2E0** Serial Port 2 I/O port address is 2E0.

→ Serial Port2 IRQ [IRQ3]

Use the **Serial Port2 IRQ** option to select the interrupt address for serial port 2.

- **IRQ3** **DEFAULT** Serial port 2 IRQ address is 3.
- **IRQ4** Serial port 2 IRQ address is 4.
- **IRQ10** Serial port 2 IRQ address is 10.

→ Serial Port2 Address [2F8/IRQ3]

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- **Disabled** No base address is assigned to Serial Port 2

- ➔ **2F8/IRQ3** **DEFAULT** Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
- ➔ **3E8/IRQ4** Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

- ➔ **Normal** **DEFAULT** Serial Port 2 mode is normal
- ➔ **IrDA** Serial Port 2 mode is IrDA
- ➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the Serial Port 3 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 3
- ➔ **3F8** Serial Port 3 I/O port address is 3F8.
- ➔ **2F8** Serial Port 3 I/O port address is 2F8
- ➔ **3E8** **DEFAULT** Serial Port 3 I/O port address is 3E8.
- ➔ **2E8** Serial Port 3 I/O port address is 2E8.
- ➔ **3E0** Serial Port 3 I/O port address is 3E0.
- ➔ **2E0** Serial Port 3 I/O port address is 2E0.

➔ **Serial Port3 IRQ [IRQ4]**

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

- ➔ **IRQ3** Serial port 3 IRQ address is 3.
- ➔ **IRQ4** **DEFAULT** Serial port 3 IRQ address is 4.

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→ **IRQ10** Serial port 3 IRQ address is 10.

→ **Select RS232 or RS485/RS422 [RS/232]**

Use the **Select RS232 or RS485/RS422** option to select the Serial Port 3 signaling mode.

→ **RS232** **DEFAULT** Serial Port 3 signaling mode is RS-232

→ **RS422/RS485** Serial Port 3 signaling mode is RS-422/RS485

→ **Serial Port4 Address [2E8]**

Use the **Serial Port4 Address** option to select the Serial Port 4 base address.

→ **Disabled** No base address is assigned to Serial Port 4

→ **3F8** Serial Port 4 I/O port address is 3F8.

→ **2F8** Serial Port 4 I/O port address is 2F8

→ **3E8** Serial Port 4 I/O port address is 3E8.

→ **2E8** **DEFAULT** Serial Port 4 I/O port address is 2E8.

→ **3E0** Serial Port 4 I/O port address is 3E0.

→ **2E0** Serial Port 4 I/O port address is 2E0.

→ **Serial Port4 IRQ [IRQ3]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

→ **IRQ3** **DEFAULT** Serial port 4 IRQ address is 3.

→ **IRQ4** Serial port 4 IRQ address is 4.

→ **IRQ10** Serial port 4 IRQ address is 10.

→ **Serial Port5 Address [3E0]**

Use the **Serial Port5 Address** option to select the Serial Port 5 base address.

→ **Disabled** No base address is assigned to Serial Port 5

- ➔ **3F8** Serial Port 5 I/O port address is 3F8.
- ➔ **2F8** Serial Port 5 I/O port address is 2F8
- ➔ **3E8** Serial Port 5 I/O port address is 3E8.
- ➔ **2E8** Serial Port 5 I/O port address is 2E8.
- ➔ **3E0** **DEFAULT** Serial Port 5 I/O port address is 3E0.
- ➔ **2E0** Serial Port 5 I/O port address is 2E0.

➔ **Serial Port5 IRQ [IRQ10]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

- ➔ **IRQ3** Serial port 5 IRQ address is 3.
- ➔ **IRQ4** Serial port 5 IRQ address is 4.
- ➔ **IRQ10** **DEFAULT** Serial port 5 IRQ address is 10.

➔ **Serial Port6 Address [2E0]**

Use the **Serial Port6 Address** option to select the Serial Port 6 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 6
- ➔ **3F8** Serial Port 6 I/O port address is 3F8.
- ➔ **2F8** Serial Port 6 I/O port address is 2F8
- ➔ **3E8** Serial Port 6 I/O port address is 3E8.
- ➔ **2E8** Serial Port 6 I/O port address is 2E8.
- ➔ **3E0** Serial Port 6 I/O port address is 3E0.
- ➔ **2E0** **DEFAULT** Serial Port 6 I/O port address is 2E0.

➔ **Serial Port6 IRQ [IRQ10]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

- ➔ **IRQ3** Serial port 6 IRQ address is 3.

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- ➔ **IRQ4** Serial port 6 IRQ address is 4.
- ➔ **IRQ10** **DEFAULT** Serial port 6 IRQ address is 10.

➔ **IR Function**

Use the **IR Function** option sets the protocol for IrDA.

- ➔ **Disabled** **DEFAULT** IrDA is disabled.
- ➔ **1.6 uS** IrDA protocol is 1.6 uS.
- ➔ **3/16 bit time** IrDA protocol is 3/16 bit time.

➔ **Serial Port7 Address [388]**

Use the **Serial Port7 Address** option to select the Serial Port 7 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 7
- ➔ **388** **DEFAULT** Serial Port 7 I/O port address is 388.
- ➔ **288** Serial Port 7 I/O port address is 288
- ➔ **380** Serial Port 7 I/O port address is 380.
- ➔ **280** Serial Port 7 I/O port address is 280.

➔ **Serial Port7 IRQ [11]**

Use the **Serial Port7 IRQ** option to select the interrupt address for serial port 7.

➔ **Serial Port8 Address [288]**

Use the **Serial Port8 Address** option to select the Serial Port 8 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 8
- ➔ **388** Serial Port 7 I/O port address is 388.
- ➔ **288** **DEFAULT** Serial Port 7 I/O port address is 288
- ➔ **380** Serial Port 7 I/O port address is 380.

→ **280** Serial Port 7 I/O port address is 280.

→ **Serial Port8 IRQ [11]**

Use the **Serial Port8 IRQ** option to select the interrupt address for serial port 8.

→ **Serial Port9 Address [380]**

Use the **Serial Port9 Address** option to select the Serial Port 9 base address.

- **Disabled** No base address is assigned to Serial Port 9
- **388** Serial Port 7 I/O port address is 388.
- **288** Serial Port 7 I/O port address is 288
- **380** **DEFAULT** Serial Port 7 I/O port address is 380.
- **280** Serial Port 7 I/O port address is 280.

→ **Serial Port9 IRQ [11]**

Use the **Serial Port9 IRQ** option to select the interrupt address for serial port 9.

→ **Serial Port10 Address [280]**

Use the **Serial Port10 Address** option to select the Serial Port 10 base address.

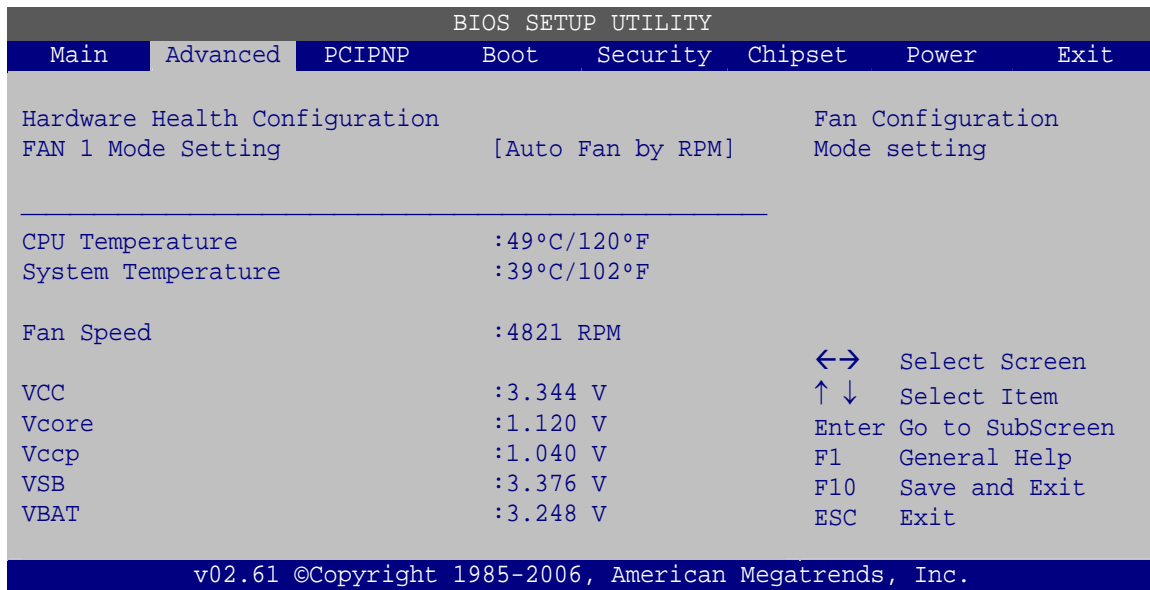
- **Disabled** No base address is assigned to Serial Port 10
- **388** Serial Port 7 I/O port address is 388.
- **288** Serial Port 7 I/O port address is 288
- **380** Serial Port 7 I/O port address is 380.
- **280** **DEFAULT** Serial Port 7 I/O port address is 280.

→ **Serial Port10 IRQ [11]**

Use the **Serial Port10 IRQ** option to select the interrupt address for serial port 10.

5.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the operating temperature, fan speeds and system voltages.



BIOS Menu 7: Hardware Health Configuration

→ FAN 1 Mode Setting [Auto Fan by RPM]

- The **FAN 1 Mode Setting** options are not supported on the KINO-945GSE3.

→ Hardware Health Monitoring

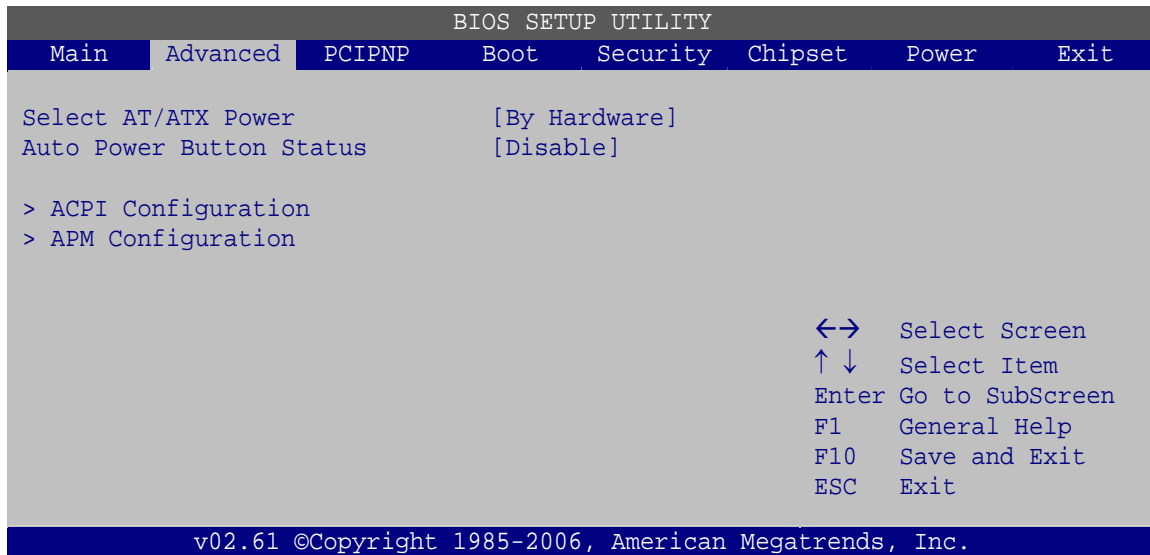
The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
 - CPU Temperature
 - System Temperature
- Fan Speeds:
 - Fan Speed
- Voltages:
 - VCC
 - Vcore
 - Vccp

- ☐ VSB
- ☐ VBAT

5.3.5 Power Configuration

The **Power Configuration** menu (**BIOS Menu 8**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.



BIOS Menu 8: Power Configuration

➔ **Select AT/ATX Power [BY HARDWARE]**

The **Select AT/ATX Power** configures the AT/ATX Power setting.

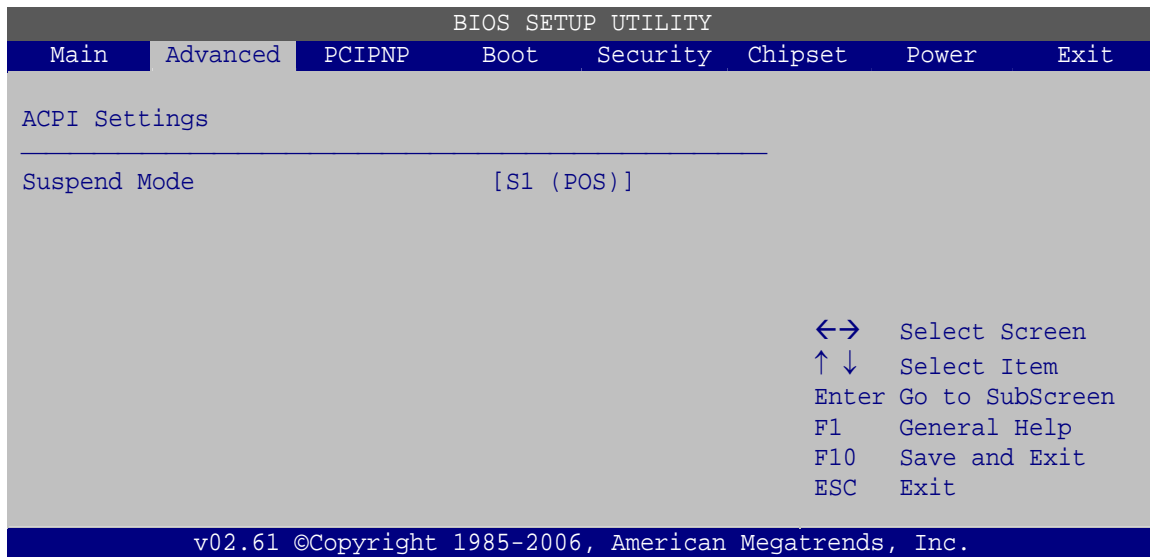
- | | | |
|---|-------------|---|
| ➔ | AT | The AT/ATX power setting is set to AT Power |
| ➔ | ATX | The AT/ATX power setting is set to ATX Power |
| ➔ | BY HARDWARE | DEFAULT The AT/ATX power setting is set to the jumper setting |

➔ **Auto Power Button Status [Disable]**

The **Auto Power Button Status** displays the status of the auto power button.

5.3.5.1 ACPI Configuration

Use the **ACPI Configuration** menu (**BIOS Menu 9**) to select the ACPI state when the system is suspended.



BIOS Menu 9: ACPI Settings

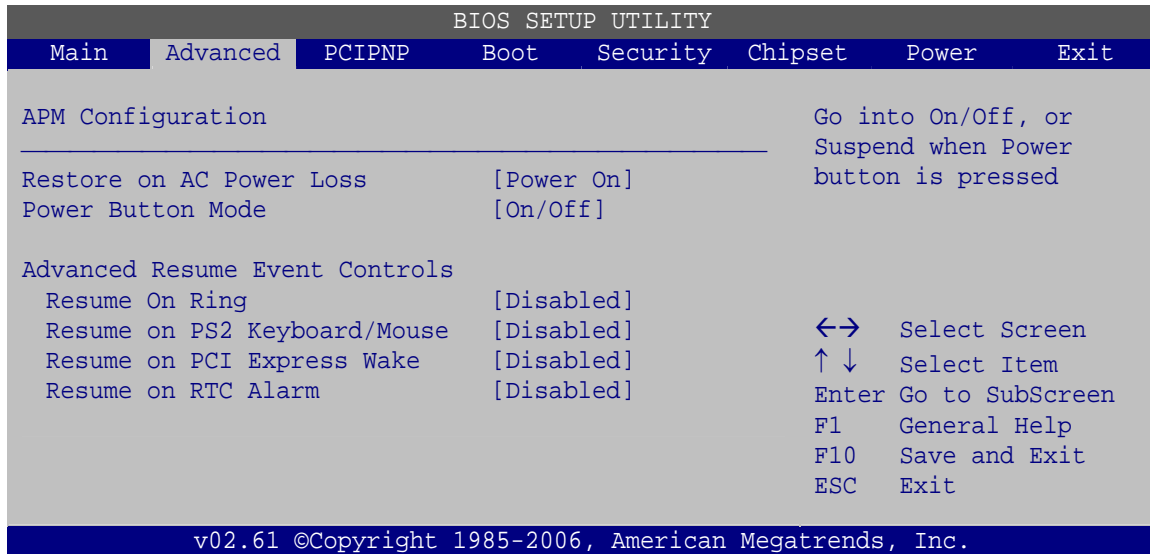
→ Suspend Mode [S1 (POS)]

Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

- **S1 (POS) DEFAULT** The system enters S1 (POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

5.3.6 APM Configuration

The **APM Configuration** menu (**BIOS Menu 10**) allows the advanced power management options to be configured.



BIOS Menu 10: APM Configuration

→ Power Button Mode [On/Off]

Use the **Power Button Mode** BIOS to specify how the power button functions.

- **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off
- **Suspend** When the power button is pressed the system goes into suspend mode

→ Restore on AC Power Loss [Power On]

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

- **Power Off** The system remains turned off
- **Power On** **DEFAULT** The system turns on
- **Last State** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

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→ Resume on Keyboard/Mouse [Disabled]

Use the **Resume on Keyboard/Mouse** BIOS option to enable activity on either the keyboard or mouse to rouse the system from a suspend or standby state. That is, the system is roused when the mouse is moved or a button on the keyboard is pressed.

- | | | | |
|---|---------------------------|----------------|---|
| → | Disabled | DEFAULT | Wake event not generated by activity on the keyboard or mouse |
| → | Resume On KeyBoard | | Wake event generated by activity on the keyboard |
| → | Resume On Mouse | | Wake event generated by activity on the mouse |
| → | Enabled | | Wake event generated by activity on the keyboard or mouse |

→ Resume on Ring [Disabled]

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

- | | | | |
|---|-----------------|----------------|--|
| → | Disabled | DEFAULT | Wake event not generated by an incoming call |
| → | Enabled | | Wake event generated by an incoming call |

→ Resume On RTC Alarm [Disabled]

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

- | | | | |
|---|-----------------|----------------|--|
| → | Disabled | DEFAULT | The real time clock (RTC) cannot generate a wake event |
|---|-----------------|----------------|--|

➔ **Enabled**

If selected, the following appears with values that can be selected:

RTC Alarm Date (Days)

System Time

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

➔ **Resume on PCI-Express WAKE# [Enabled]**

The **Resume on PCI-Express WAKE#** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI-Express bus.

➔ **Disabled**

Wake event not generated by PCI-Express activity

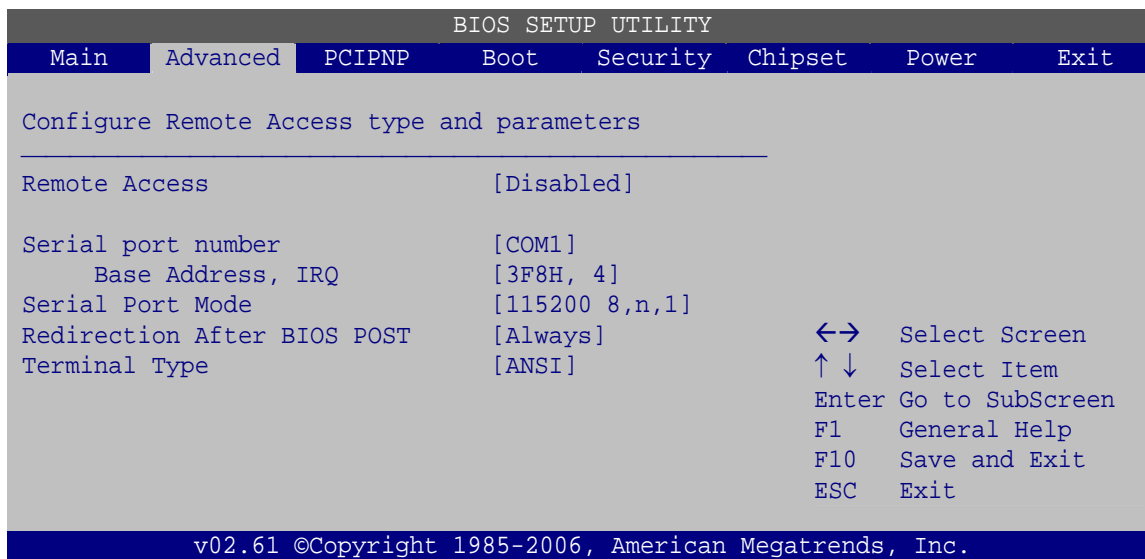
➔ **Enabled**

DEFAULT

Wake event generated by PCI-Express activity

5.3.7 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 11**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 11: Remote Access Configuration

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→ Remote Access [Disabled]

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

- **Disabled** **DEFAULT** Remote access is disabled.
- **Enabled** Remote access configuration options shown below appear:
 - Serial Port Number
 - Serial Port Mode
 - Flow Control
 - Redirection after BIOS POST
 - Terminal Type
 - VT-UTF8 Combo Key Support

These configuration options are discussed below.

→ Serial Port Number [COM1]

Use the **Serial Port Number** option to select the serial port used for remote access.

- **COM1** **DEFAULT** System is remotely accessed through COM1
- **COM2** System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

→ Base Address, IRQ [2F8h,3]

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

→ Serial Port Mode [115200 8,n,1]

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1


NOTE:

Identical baud rate setting must be set on the host (a management computer running a terminal software) and the slave

→ Redirection After BIOS POST [Always]

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

- | | |
|-----------------------------|--|
| → Disabled | The console is not redirected after POST |
| → Boot Loader | Redirection is active during POST and during Boot Loader |
| → Always DEFAULT | Redirection is always active (Some OSES may not work if set to Always) |

→ Terminal Type [ANSI]

Use the **Terminal Type** BIOS option to specify the remote terminal type.

- | | |
|---------------------------|-------------------------------------|
| → ANSI DEFAULT | The target terminal type is ANSI |
| → VT100 | The target terminal type is VT100 |
| → VT-UTF8 | The target terminal type is VT-UTF8 |

→ VT-UTF8 Combo Key Support [Disabled]

Use the **VT-UFT8 Combo Key Support** option to enable additional keys that are not provided by VT100 for the PC 101 keyboard.

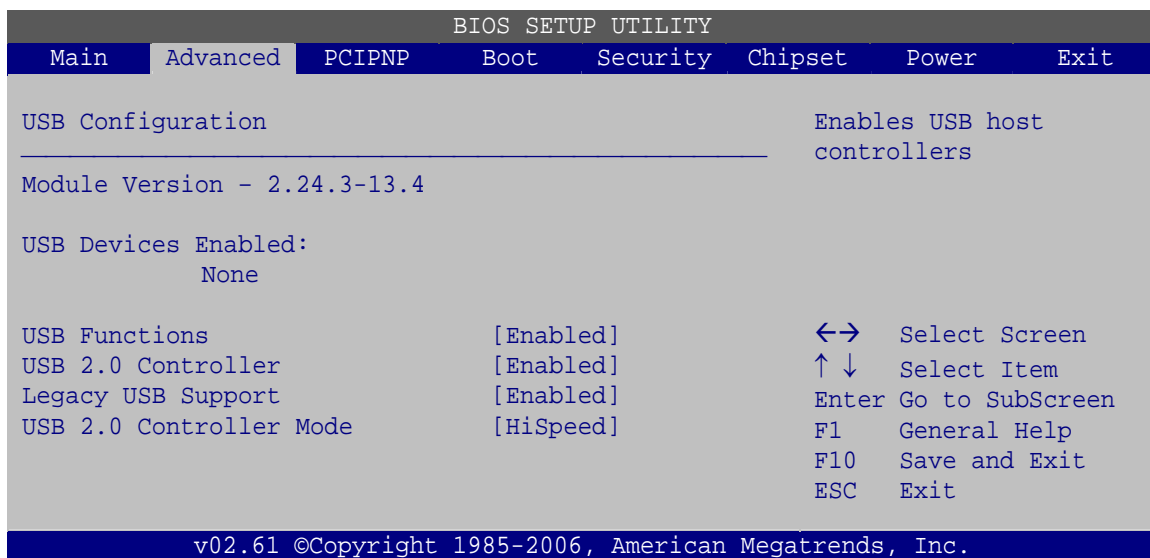
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The VT100 Terminal Definition is the standard convention used to configure and conduct emergency management tasks with UNIX-based servers. VT100 does not support all keys on the standard PC 101-key layout, however. The VT-UTF8 convention makes available additional keys that are not provided by VT100 for the PC 101 keyboard.

- ➔ **Disabled** **DEFAULT** Disables the VT-UTF8 terminal keys
- ➔ **Enabled** Enables the VT-UTF8 combination key. Support for ANSI/VT100 terminals

5.3.8 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 12**) to read USB configuration information and configure the USB settings.



BIOS Menu 12: USB Configuration

➔ USB Configuration

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ USB Devices Enabled

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

→ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable USB function support.

- **Disabled** USB function support disabled
- **Enabled DEFAULT** USB function support enabled

→ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

- **Disabled** USB 2.0 controller disabled
- **Enabled DEFAULT** USB 2.0 controller enabled

→ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

- **Disabled** Legacy USB support disabled
- **Enabled DEFAULT** Legacy USB support enabled
- **Auto** Legacy USB support disabled if no USB devices are connected

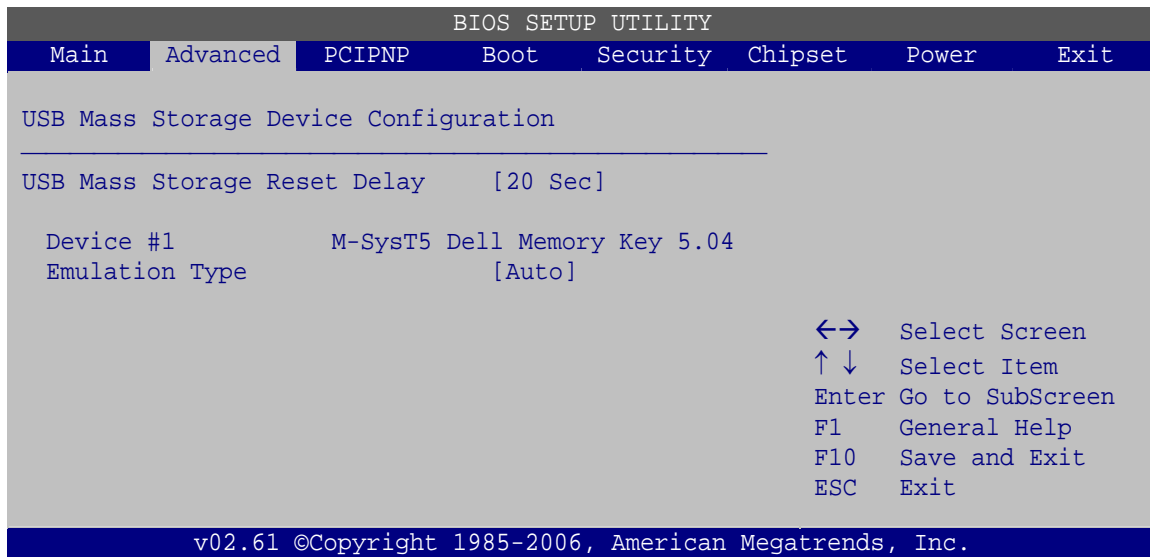
→ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

- **FullSpeed** The controller is capable of operating at 12 Mb/s
- **HiSpeed DEFAULT** The controller is capable of operating at 480 Mb/s

5.3.8.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 13**) to configure USB mass storage class devices.



BIOS Menu 13: USB Mass Storage Device Configuration

→ USB Mass Storage Reset Delay [20 Sec]

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

- **10 Sec** POST waits 10 seconds for the USB mass storage device after the start unit command.
- **20 Sec** **DEFAULT** POST waits 20 seconds for the USB mass storage device after the start unit command.
- **30 Sec** POST waits 30 seconds for the USB mass storage device after the start unit command.
- **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

→ Device

The **Device##** field lists the USB devices that are connected to the system.

→ Emulation Type [Auto]

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

- | | | | |
|---|-------------------|----------------|--|
| → | Auto | DEFAULT | BIOS auto-detects the current USB. |
| → | Floppy | | The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively. |
| → | Forced FDD | | Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32. |
| → | Hard Disk | | Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above. |
| → | CDROM | | Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option. |

5.4 PCI/PnP

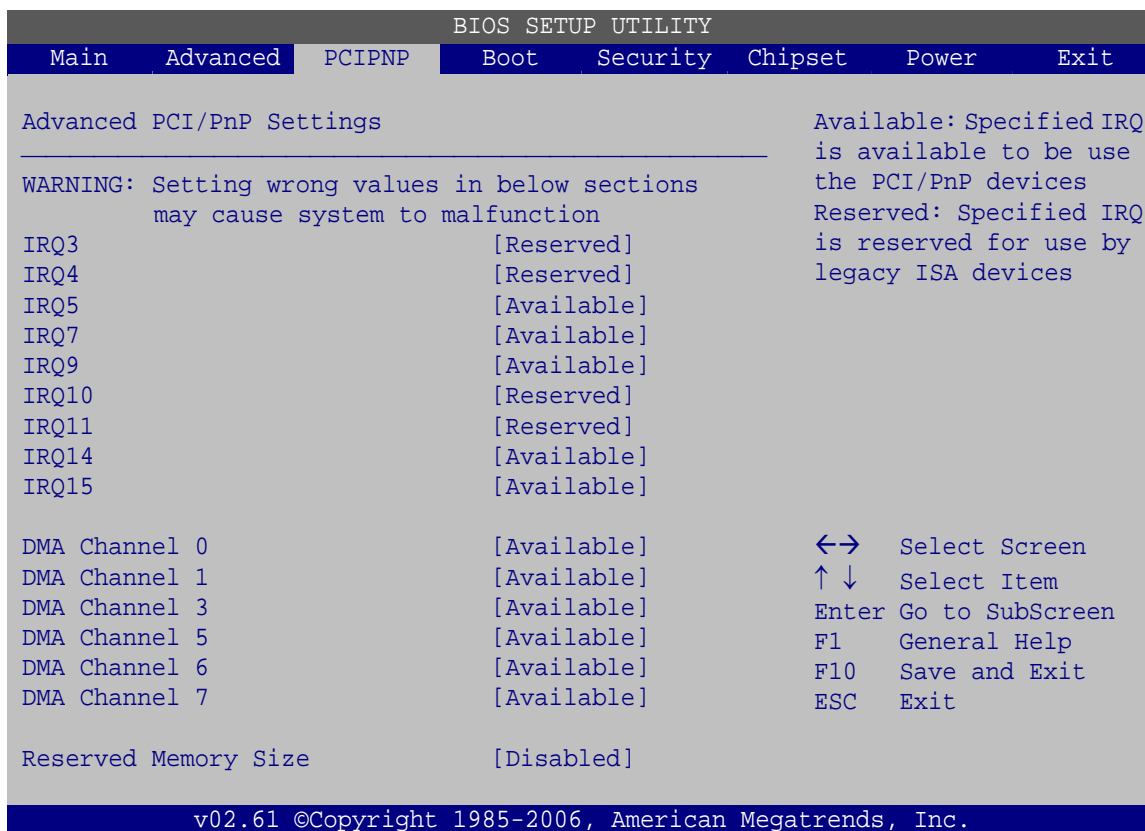
Use the **PCI/PnP** menu (**BIOS Menu 14**) to configure advanced PCI and PnP settings.



WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.

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BIOS Menu 14: PCI/PnP Configuration

→ IRQ# [Available]

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

- **Available** **DEFAULT** The specified IRQ is available to be used by PCI/PnP devices
- **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7

- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

- | | | | |
|---|------------------|----------------|--|
| ➔ | Available | DEFAULT | The specified DMA is available to be used by PCI/PnP devices |
| ➔ | Reserved | | The specified DMA is reserved for use by Legacy ISA devices |

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

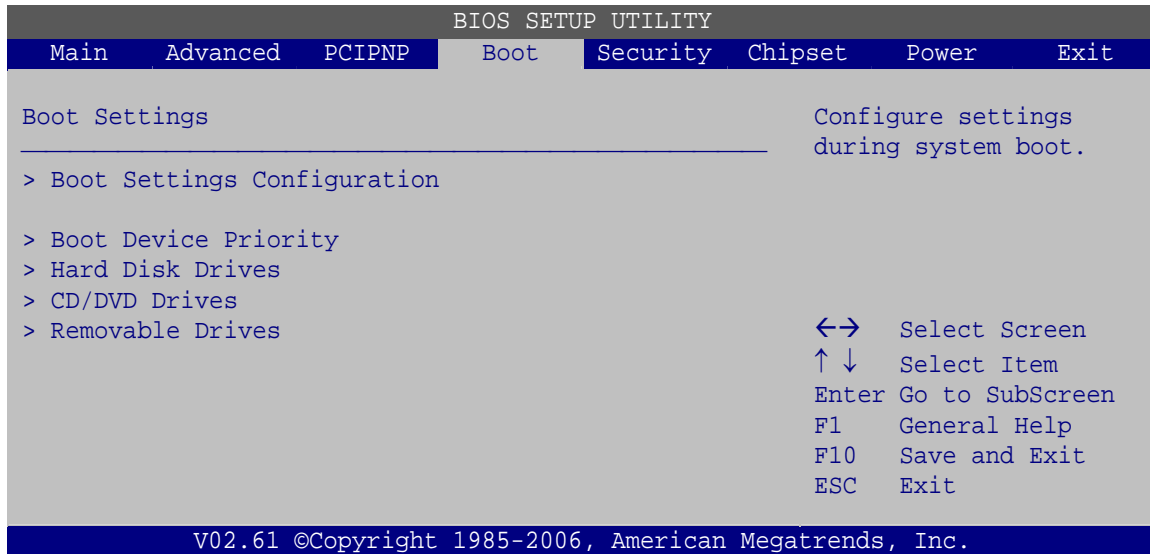
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | DEFAULT | No memory block reserved for legacy ISA devices |
| ➔ | 16K | | 16 KB reserved for legacy ISA devices |
| ➔ | 32K | | 32 KB reserved for legacy ISA devices |
| ➔ | 64K | | 54 KB reserved for legacy ISA devices |

5.5 Boot

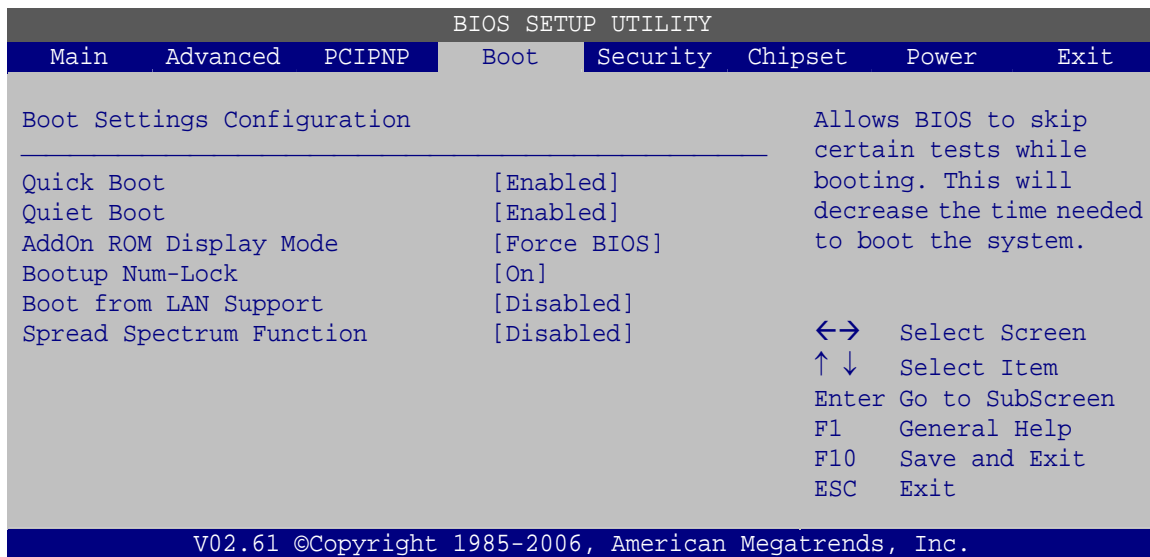
Use the **Boot** menu (**BIOS Menu 15**) to configure system boot options.



BIOS Menu 15: Boot

5.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 16**) to configure advanced system boot options.



BIOS Menu 16: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | | No POST procedures are skipped |
| ➔ | Enabled | DEFAULT | Some POST procedures are skipped to decrease the system boot time |

➔ **Boot From LAN Support [Disabled]**

Use the **BOOT From LAN Support** option to enable the system to be booted from a remote system.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | DEFAULT | Cannot be booted from a remote system through the LAN |
| ➔ | Enabled | DEFAULT | Can be booted from a remote system through the LAN |

➔ **Quiet Boot [Disabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | DEFAULT | Normal POST messages displayed |
| ➔ | Enabled | | OEM Logo displayed instead of POST messages |

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

- | | | | |
|---|---------------------|----------------|---|
| ➔ | Force BIOS | DEFAULT | The system forces third party BIOS to display during system boot. |
| ➔ | Keep Current | | The system displays normal information during system boot. |

→ Bootup Num-Lock [On]

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

- **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
- **On DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

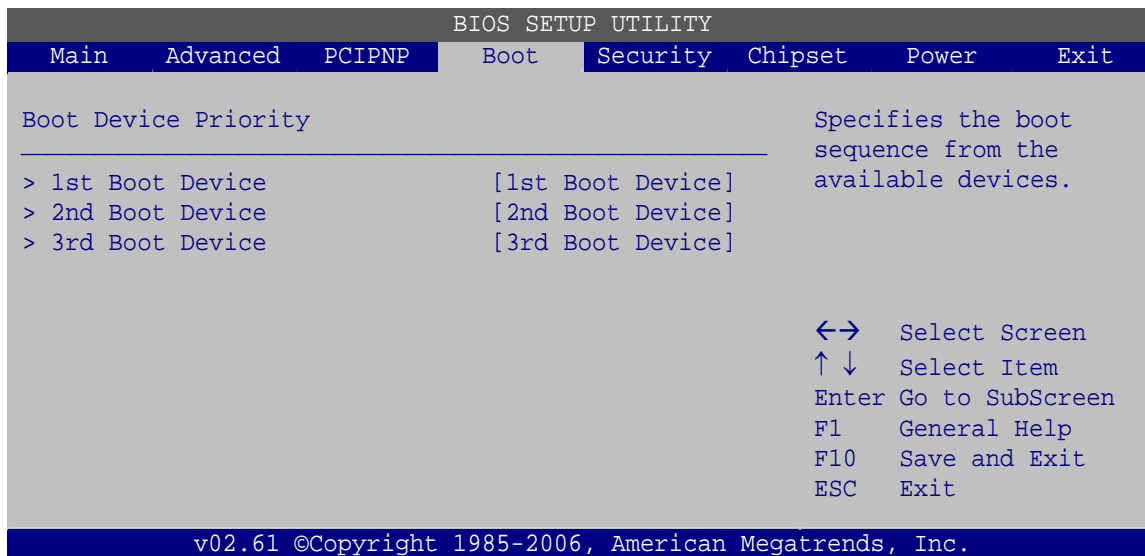
→ Spread Spectrum Function [Disabled]

Use the **Spread Spectrum Function** option to reduce the EMI. Excess EMI is generated when the system clock generator pulses have extreme values. Spreading the pulse spectrum modulates changes in the extreme values from spikes to flat curves, thus reducing the EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

- **Disabled DEFAULT** EMI not reduced
- **Enabled** EMI reduced

5.5.2 Boot Device Priority

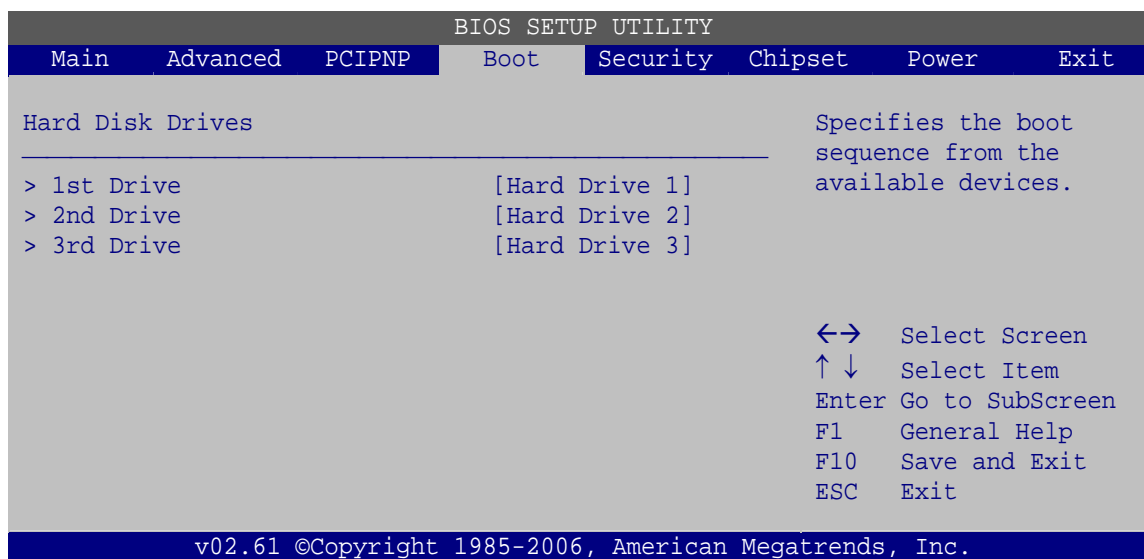
Use the **Boot Device Priority** menu (**BIOS Menu 17**) to specify the boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.



BIOS Menu 17: Boot Device Priority Settings

5.5.3 Hard Disk Drives

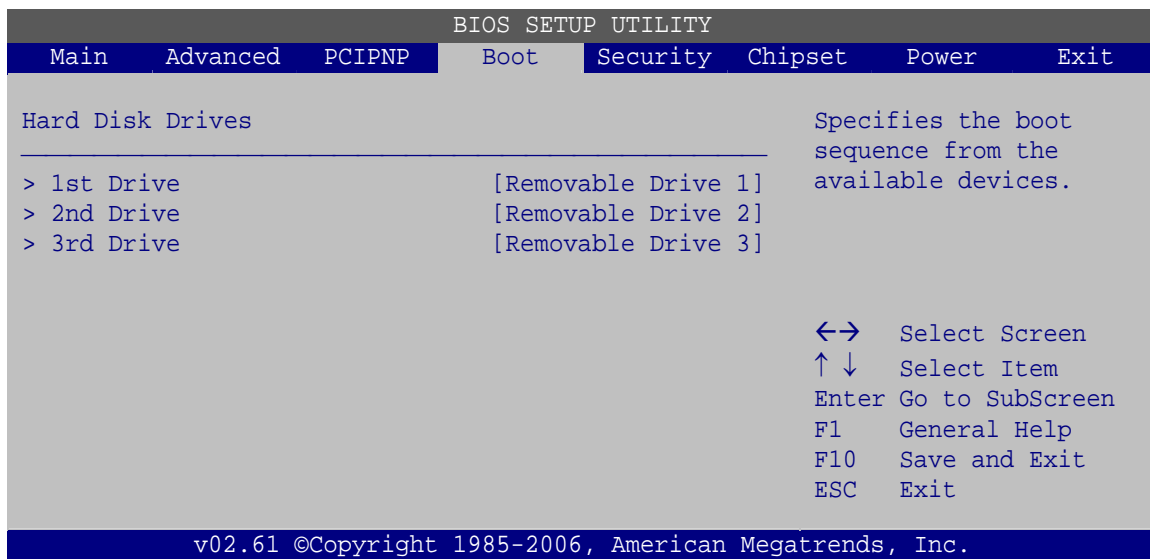
Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs.
Only installed hard drives are shown.



BIOS Menu 18: Hard Disk Drives

5.5.4 Removable Drives

Use the **Removable Drives** menu (**BIOS Menu 19**) to specify the boot sequence of the removable drives. Only connected drives are shown.



BIOS Menu 19: Removable Drives

5.5.5 CD/DVD Drives

Use the **CD/DVD Drives** menu to specify the boot sequence of the available CD/DVD drives. When the menu is opened, the CD drives and DVD drives connected to the system are listed as shown below:

- 1st Drive [CD/DVD: PM-(part ID)]
- 2nd Drive [HDD: PS-(part ID)]
- 3rd Drive [HDD: SM-(part ID)]
- 4th Drive [HDD: SM-(part ID)]

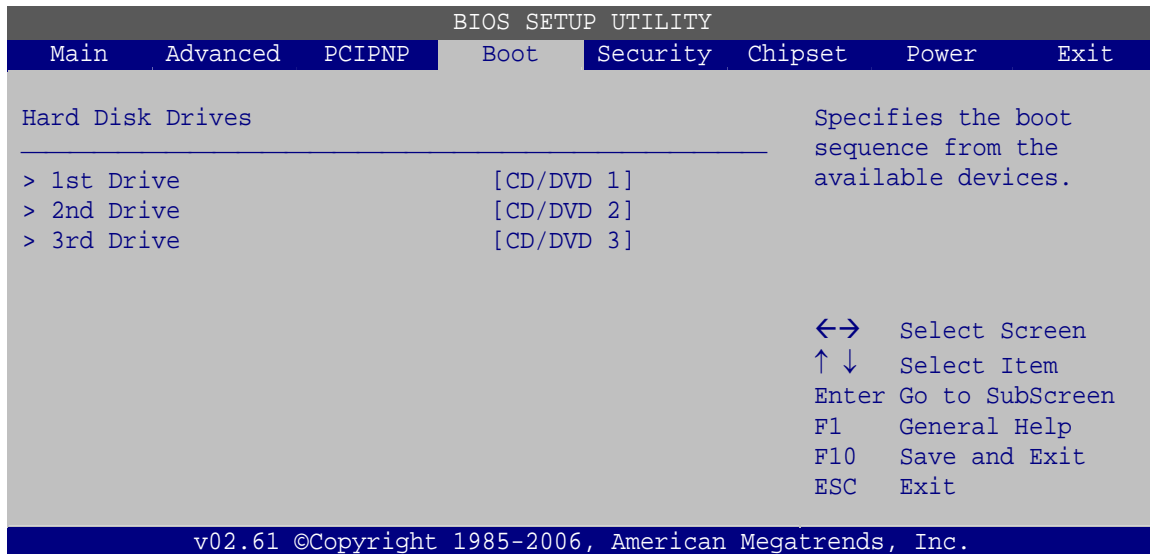


NOTE:

Only the drives connected to the system are shown. For example, if only two CDs or DVDs are connected only **"1st Drive"** and **"2nd Drive"** are listed.

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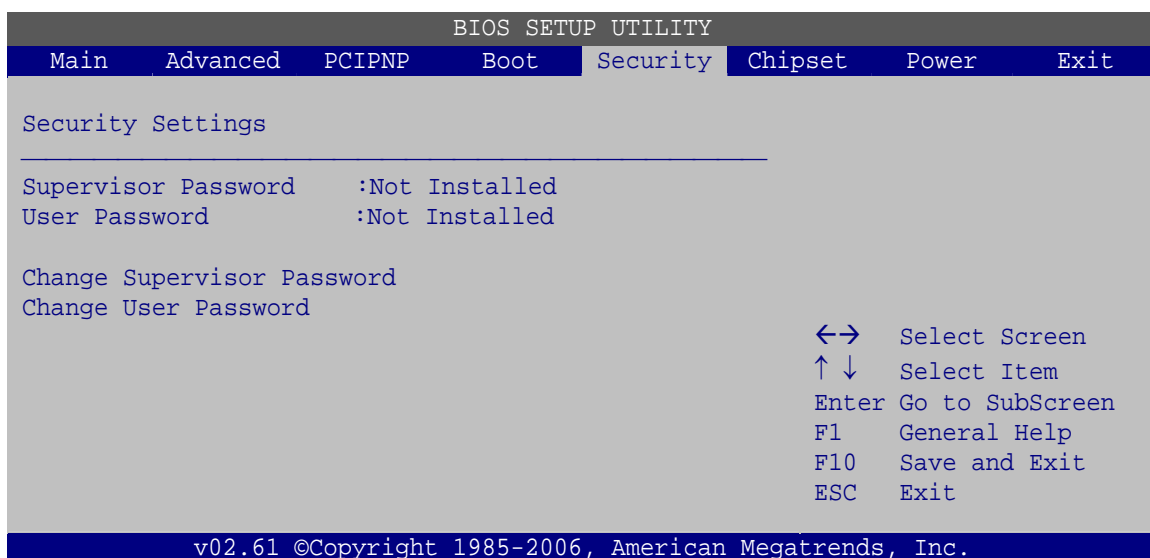
The boot sequence from the available devices is selected. If the “**1st Drive**” option is selected a list of available CD/DVD drives is shown. Select the first CD/DVD drive the system boots from. If the “**1st Drive**” is not used for booting this option may be disabled.



BIOS Menu 20: CD/DVD Drives

5.6 Security

Use the **Security** menu (**BIOS Menu 21**) to set system and user passwords.



BIOS Menu 21: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

➔ **Clear User Password**

Use the **Clear User Password** to clear a user's password. The default for this option is **Not Installed**. If a user password must be cleared, use this option.

➔ **Boot Sector Virus Protection [Disabled]**

Use the **Boot Sector Virus Protection** to enable or disable boot sector protection.

- ➔ **Disabled** **DEFAULT** Disables the boot sector virus protection
- ➔ **Enabled** Enables the boot sector virus protection

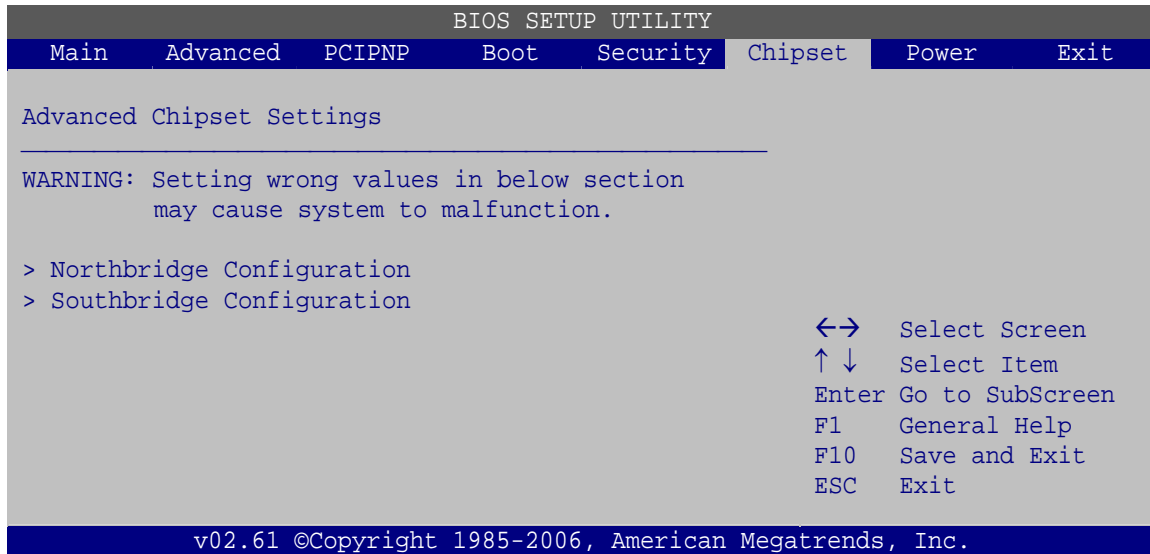
5.7 Chipset

Use the **Chipset** menu (**BIOS Menu 22**) to access the Northbridge and Southbridge configuration menus



WARNING!

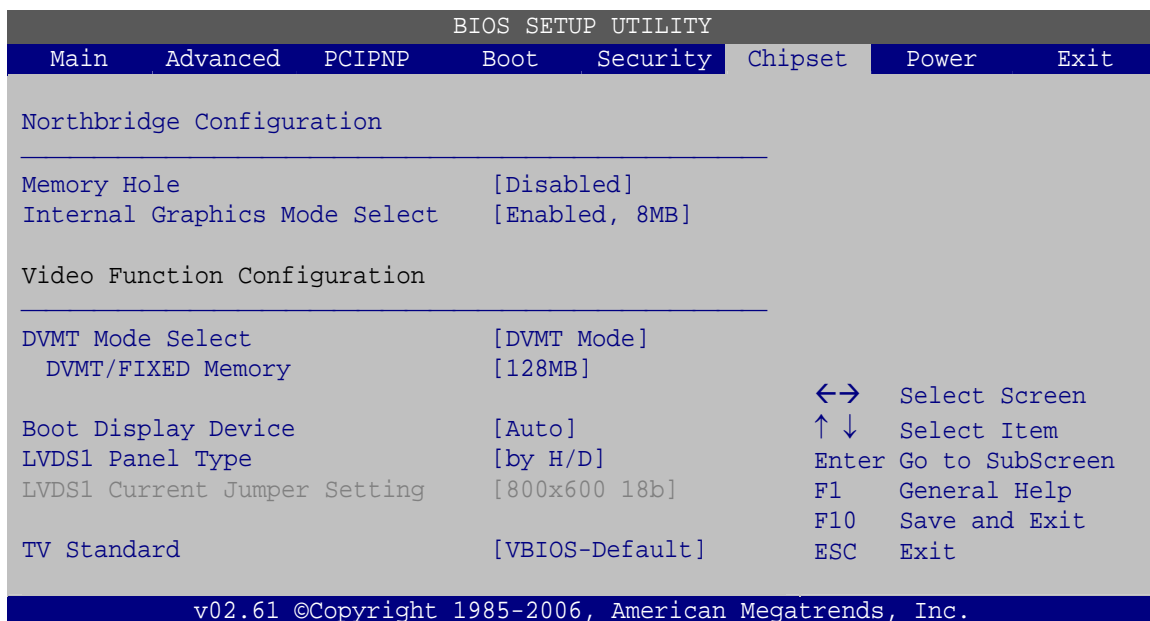
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 22: Chipset

5.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 23**) to configure the Northbridge chipset.



BIOS Menu 23: Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15 MB and 16 MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

- ➔ **Disabled** **DEFAULT** Memory is not reserved for ISA expansion cards
- ➔ **15 MB–16 MB** Between 15 MB and 16 MB of memory is reserved for ISA expansion cards

➔ **Internal Graphics Mode Select [Enable, 8 MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the internal graphics device.

- ➔ **Disable**
- ➔ **Enable, 1 MB** 1 MB of memory used by internal graphics device
- ➔ **Enable, 8 MB** **DEFAULT** 8 MB of memory used by internal graphics device

➔ **DVMT Mode Select [DVMT Mode]**

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

- ➔ **Fixed Mode** A fixed portion of graphics memory is reserved as graphics memory.
- ➔ **DVMT Mode** **DEFAULT** Graphics memory is dynamically allocated according to the system and graphics needs.
- ➔ **Combo Mode** A fixed portion of graphics memory is reserved as graphics memory. If more memory is needed, graphics memory is dynamically allocated according to the system and graphics needs.

→ DVMT/FIXED Memory [128 MB]

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. This option can only be configured for if **DVMT Mode** or **Fixed Mode** is selected in the **DVMT Mode Select** option. If **Combo Mode** is selected, the maximum amount of graphics memory is 128 MB. Configuration options are listed below.

- 64 MB
- 128 MB Default

→ Boot Display Device [Auto]

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- Auto DEFAULT
- CRT
- TV
- LFP

→ LVDS1 Panel Type

Use the **LVDS1 Panel Type** to determine the LCD panel resolution. Configuration options are listed below:

- 640 x 480 18b
- 800 x 480 18b
- 800 x 600 18b
- 1024 x 768 18b
- 1280 x 1024 36b
- 1400 x 1050 36b
- 1440 x 900 36b
- 1600 x 1200 36b
- by H/W

→ LVDS1 Current Jumper Setting

The **LVDS1 Current Jumper Setting** displays the current jumper setting configuration.

→ TV Standard [VBIOS]

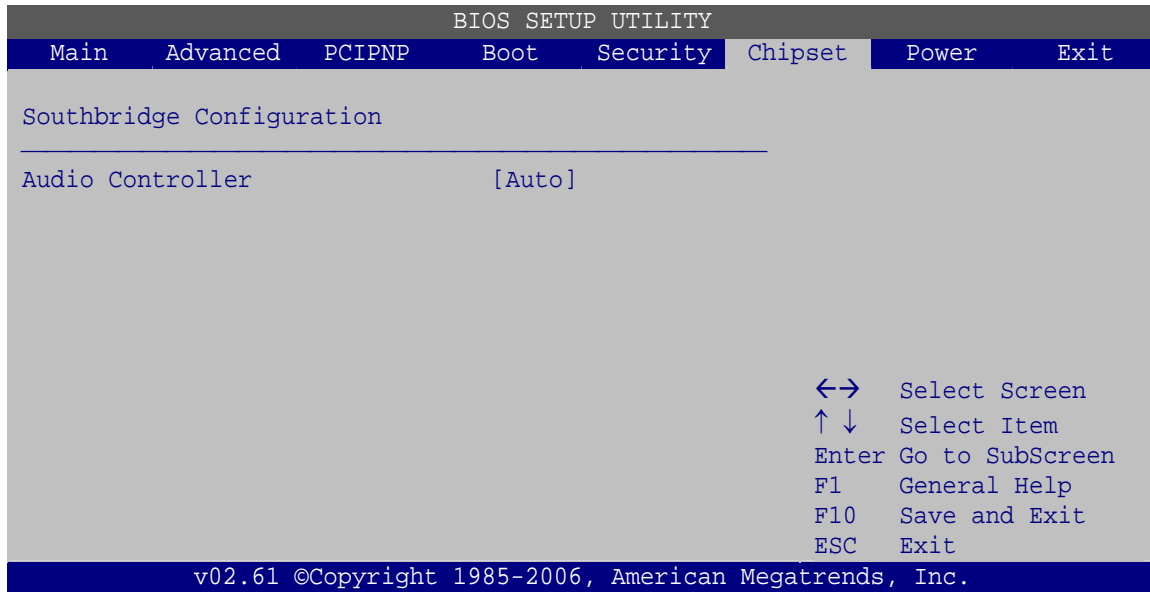
Use the **TV Standard** option to select the standard of the television connected to the system. The configuration options are listed below.

- VBIOS-Default DEFAULT
- NTSC
- PAL
- SECAM
- SMPTE240M
- ITU-R television
- SMPTE295M
- SMPTE296M
- ETA-770.2
- ETA-770.3

5.7.2 Southbridge Configuration

Use the **Southbridge Configuration** menu (**BIOS Menu 24**) to configure the Southbridge chipset.

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BIOS Menu 24: Southbridge Chipset Configuration

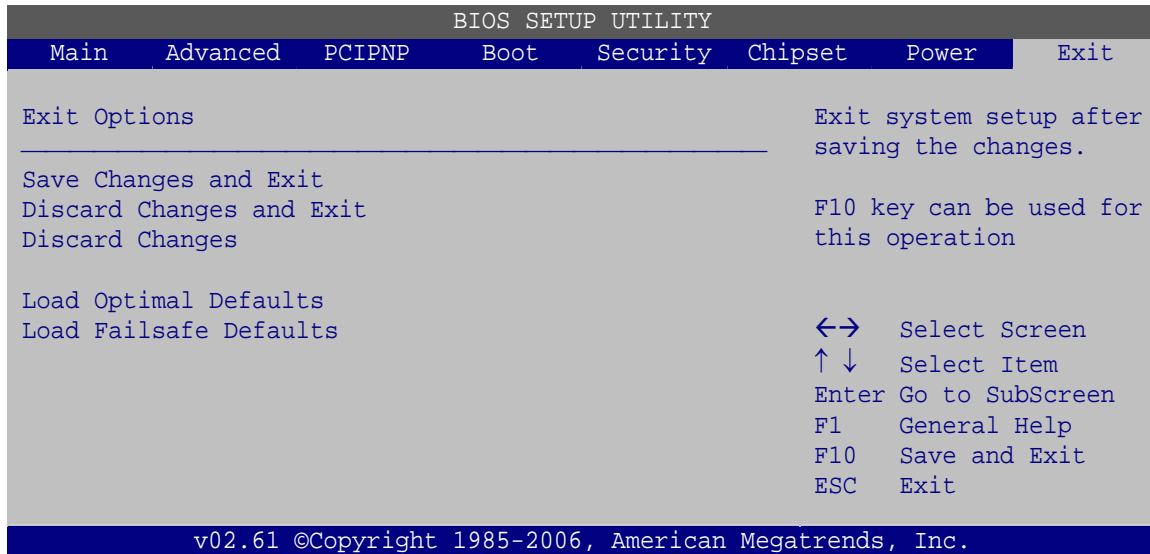
→ Audio Controller [AC'97 Audio Only]

Use the **Audio Controller** option to enable or disable the onboard audio controller.

- **AC'97 Audio Only** **DEFAULT** The onboard audio controller is enabled
- **All Disabled** The onboard audio controller is disabled

5.8 Exit

Use the **Exit** menu (**BIOS Menu 25**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 25: Exit

→ Save Changes and Exit

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

→ Discard Changes and Exit

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

→ Discard Changes

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

→ Load Optimal Defaults

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

→ Load Failsafe Defaults

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Appendix**A**

BIOS Options

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Appendix**B**

One Key Recovery

B.1 One Key Recovery Introduction

The IEI one key recovery is an easy-to-use front end for the Norton Ghost system backup and recovery tool. The one key recovery provides quick and easy shortcuts for creating a backup and reverting to that backup or for reverting to the factory default settings.

To create the system backup the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

B.1.1 System Requirement

The partition created for recovery images must be big enough to contain both the factory default image and the user backup image. The size must be calculated before creating the partitions. Please take the following table as a reference when calculating the size of the partition.

| | OS | OS Image after Ghost | Compression Ratio |
|-----------------|---------------|----------------------|-------------------|
| Windows® 7 | 7 GB | 5 GB | 70% |
| Windows® XPE | 776 MB | 560 MB | 70% |
| Windows® CE 6.0 | 36 MB | 28 MB | 77% |



NOTE:

Specialized tools are required to change the partition size if the operating system is already installed.

B.1.2 Supported Operating System

The recovery CD is compatible with both Microsoft Windows and Linux operating system (OS). The supported OS versions are listed below.

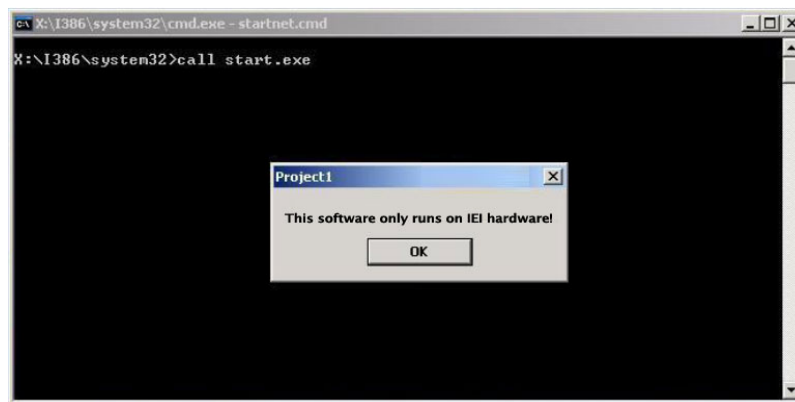
- Microsoft Windows
 - Windows XP (Service Pack 2 or 3 required)
 - Windows Vista
 - Windows 7
 - Windows CE 5.0
 - Windows CE 6.0
 - Windows XP Embedded
- Linux
 - Fedora Core 12 (Constantine)
 - Fedora Core 11 (Leonidas)
 - Fedora Core 10 (Cambridge)
 - Fedora Core 8 (Werewolf)
 - Fedora Core 7 (Moonshine)
 - RedHat RHEL-5.4
 - RedHat 9 (Ghirke)
 - Ubuntu 8.10 (Intrepid)
 - Ubuntu 7.10 (Gutsy)
 - Ubuntu 6.10 (Edgy)
 - Debian 5.0 (Lenny)
 - Debian 4.0 (Etch)
 - SuSe 11.2
 - SuSe 10.3

**NOTE:**

Installing unsupported OS versions may cause the recovery tool to fail.

**NOTE:**

The recovery CD can only be used with IEI products. The software will fail to run and a warning message will appear when used on non-IEI hardware.



B.2 Setup Procedure for Windows

Prior to using the recovery tool to backup or restore system, a few setup procedures are required.

Step 6: Hardware and BIOS setup

Step 7: Create partitions

Step 8: Install operating system, drivers and system applications.

Step 9: Build-up recovery partition

Step 10: Create factory default image

The detailed descriptions are described in the following sections.

**NOTE:**

The setup procedures described below are for Microsoft Windows operating system users. For Linux system, most setup procedures are the same with Microsoft Windows except for several steps which is described in Section B.3.

B.2.1 Hardware and BIOS Setup

- Step 1:** Make sure the system is powered off and unplugged.
- Step 2:** Install a hard driver or SSD in the KINO-945GSE3. An unformatted and unpartitioned disk is recommended.
- Step 3:** Connect an optical disk drive to the KINO-945GSE3 and insert the recovery CD.
- Step 4:** Turn on the system.
- Step 5:** Press the <DELETE> key as soon as the system is turned on to enter the BIOS.
- Step 6:** Select the connected optical disk drive as the 1st boot device. (**Boot → Boot Device Priority → 1st Boot Device**).
- Step 7:** Save changes and restart the computer. Continue to the next section for instructions on partitioning the internal storage.

B.2.2 Create Partitions

- Step 1:** Put the recovery CD in the optical drive.
- Step 2:** Turn on the system.
- Step 3:** When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient.
- Step 4:** The recovery tool setup menu is shown as below.

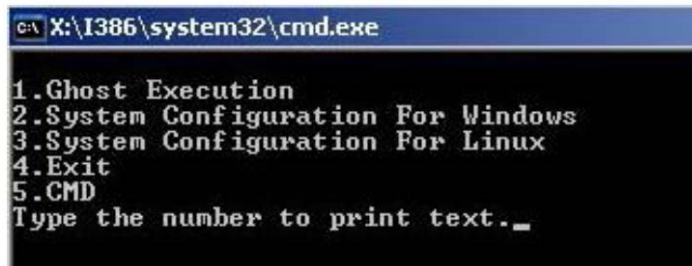


Figure B-1: Recovery Tool Setup Menu

Step 5: Press <5> then <Enter>.

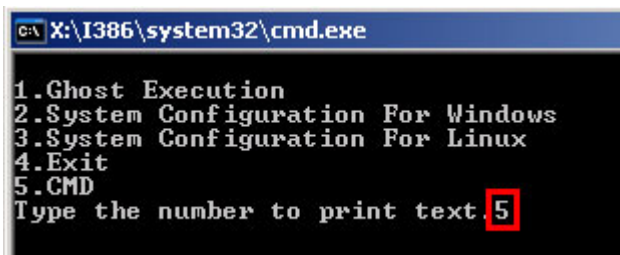


Figure B-2: Command Mode

Step 6: The command prompt window appears. Type the following commands (marked in red) to create two partitions. One is for the OS installation; the other is for saving recovery files and images which will be an invisible partition.

(Press <Enter> after entering each line below)

system32>diskpart

DISKPART>list vol

DISKPART>sel disk 0

DISKPART>create part pri size= ____

DISKPART>assign letter=N

DISKPART>create part pri size= ____

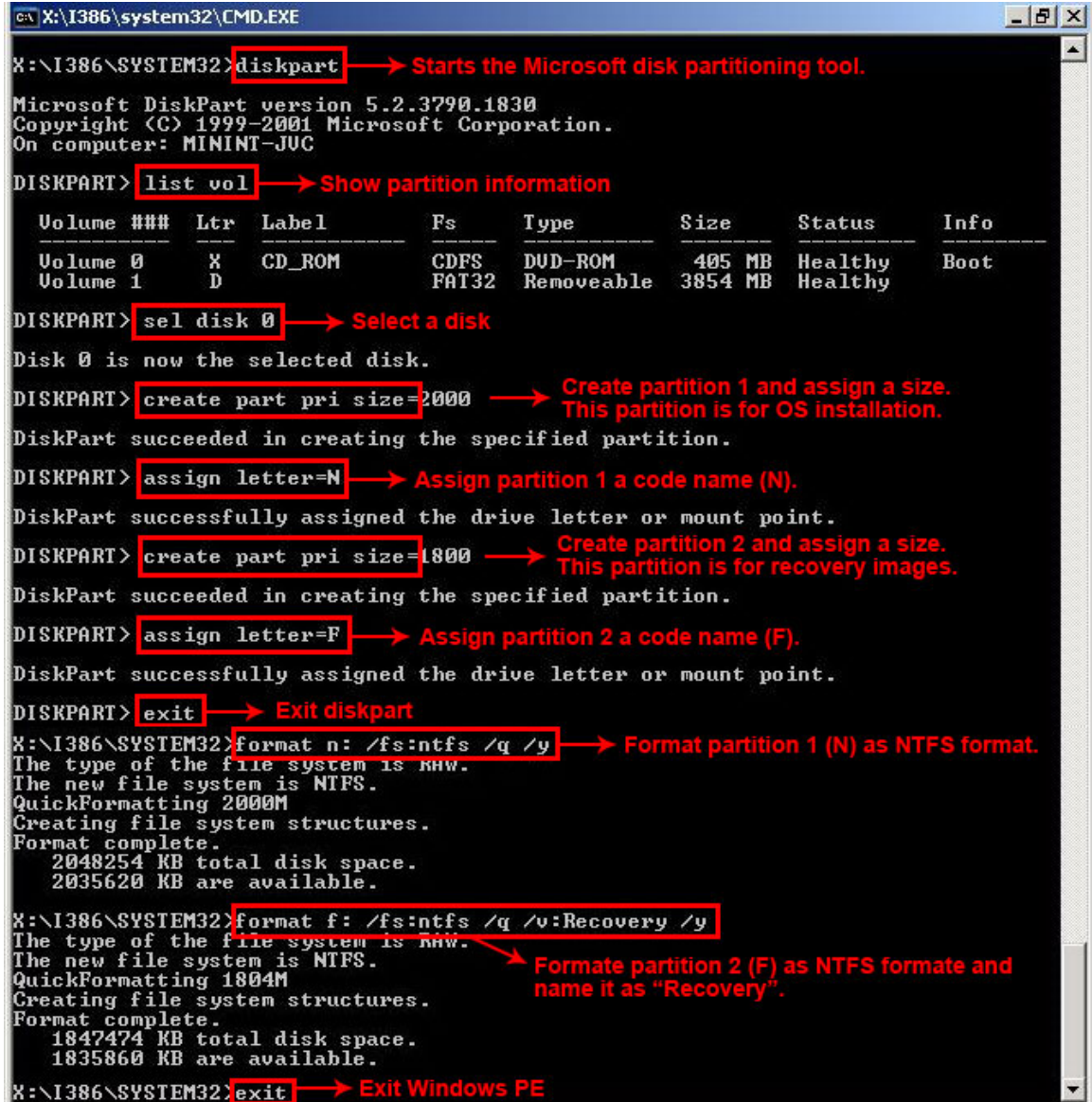
DISKPART>assign letter=F

DISKPART>exit

system32>format N: /fs:ntfs /q /y

system32>**format F: /fs:ntfs /q /v:Recovery /y**

system32>**exit**



```

X:\I386\system32\CMD.EXE

X:\I386\SYSTEM32>diskpart → Starts the Microsoft disk partitioning tool.

Microsoft DiskPart version 5.2.3790.1830
Copyright (C) 1999-2001 Microsoft Corporation.
On computer: MININT-JUC

DISKPART>list vol → Show partition information

Volume ###  Ltr  Label          Fs      Type          Size      Status       Info
-----
Volume 0      X    CD_ROM         CDFS     DVD-ROM       405 MB     Healthy      Boot
Volume 1      D           FAT32      Removeable  3854 MB     Healthy

DISKPART>sel disk 0 → Select a disk

Disk 0 is now the selected disk.

DISKPART>create part pri size=2000 → Create partition 1 and assign a size.
                                     This partition is for OS installation.
DiskPart succeeded in creating the specified partition.

DISKPART>assign letter=N → Assign partition 1 a code name (N).
DiskPart successfully assigned the drive letter or mount point.

DISKPART>create part pri size=1800 → Create partition 2 and assign a size.
                                     This partition is for recovery images.
DiskPart succeeded in creating the specified partition.

DISKPART>assign letter=F → Assign partition 2 a code name (F).
DiskPart successfully assigned the drive letter or mount point.

DISKPART>exit → Exit diskpart

X:\I386\SYSTEM32>format n: /fs:ntfs /q /y → Format partition 1 (N) as NTFS format.
The type of the file system is RAW.
The new file system is NTFS.
QuickFormatting 2000M
Creating file system structures.
Format complete.
2048254 KB total disk space.
2035620 KB are available.

X:\I386\SYSTEM32>format f: /fs:ntfs /q /v:Recovery /y → Formate partition 2 (F) as NTFS formate and
                                                         name it as "Recovery".
The type of the file system is RAW.
The new file system is NTFS.
QuickFormatting 1804M
Creating file system structures.
Format complete.
1847474 KB total disk space.
1835860 KB are available.

X:\I386\SYSTEM32>exit → Exit Windows PE
  
```

Figure B-3: Partit Creation Commands

**NOTE:**

Use the following commands to check if the partitions were created successfully.

```
X:\I386\SYSTEM32>diskpart
Microsoft DiskPart version 5.2.3790.1830
Copyright (C) 1999-2001 Microsoft Corporation.
On computer: MININT-JUC

DISKPART> sel disk 0
Disk 0 is now the selected disk.

DISKPART> list part

   Partition ###   Type              Size          Offset
-----
Partition 1       Primary           2000 MB         32 KB
Partition 2       Primary           1804 MB       2000 MB

DISKPART> exit
```

Step 7: Press any key to exit the recovery tool and automatically reboot the system.

Please continue to the following procedure: Build-up Recovery Partition.

B.2.3 Install Operating System, Drivers and Applications

Install the operating system onto the unlabelled partition. The partition labeled as "Recovery" is for use by the system recovery tool and should not be used for installing the operating system or any applications.

**NOTE:**

The operating system installation program may offer to reformat the chosen partition. **DO NOT** format the partition again. The partition has already been formatted and is ready for installing the new operating system.

To install the operating system, insert the operating system installation CD into the optical drive. Restart the computer and follow the installation instructions.

B.2.4 Build-up Recovery Partition

- Step 1:** Put the recover CD in the optical drive.
- Step 2:** Start the system.
- Step 3:** Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient.
- Step 4:** When the recovery tool setup menu appears, press <2> then <Enter>.

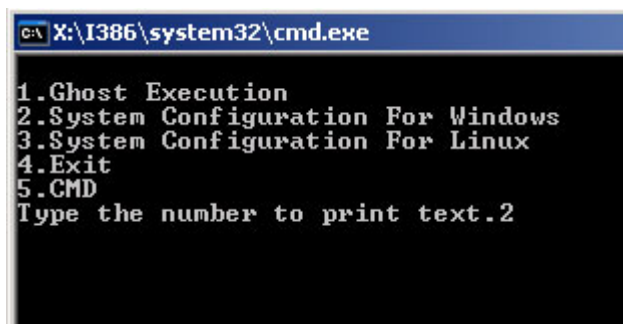


Figure B-4: System Configuration for Windows

- Step 5:** The Symantec Ghost window appears and starts configuring the system to build-up a recovery partition. In this process, the partition which is created for recovery files in **Section B.2.2** is hidden and the recovery tool is saved in this partition.

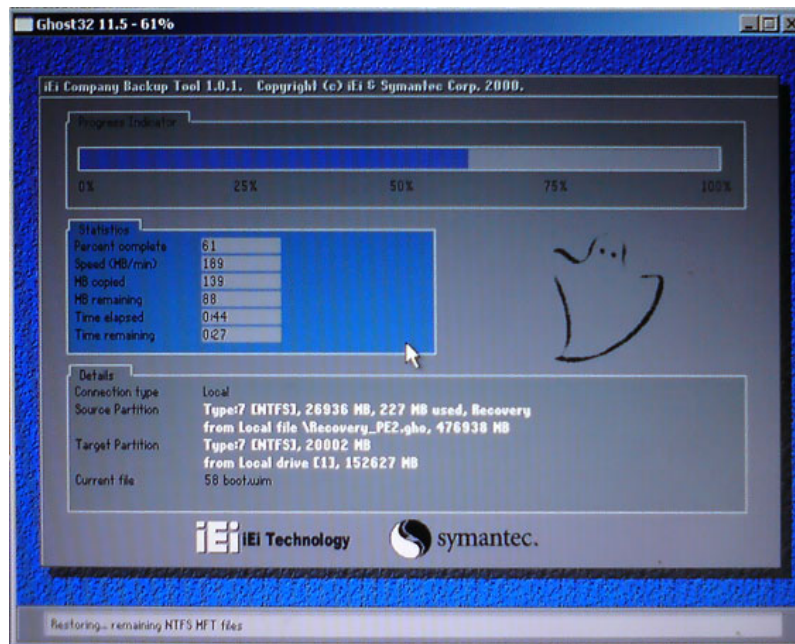


Figure B-5: Build-up Recovery Partition

Step 6: After completing the system configuration, press any key in the following window to reboot the system.

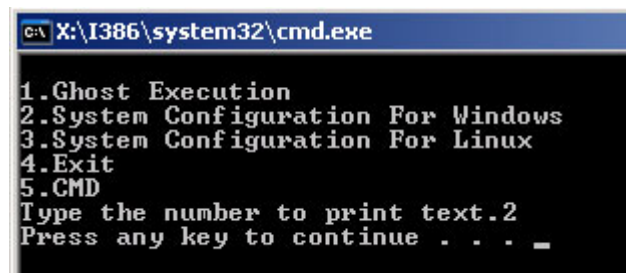


Figure B-6: Press any key to continue

Step 7: Eject the recovery CD.

B.2.5 Create Factory Default Image

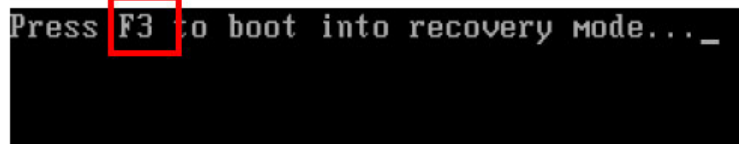


NOTE:

Before creating the factory default image, please configure the system to a factory default environment, including driver and application installations.

To create a factory default image, please follow the steps below.

Step 1: Turn on the system. When the following screen displays (**Figure B-7**), press the <F3> key to access the recovery tool. The message will display for 10 seconds, please press F3 before the system boots into the operating system.



```
Press F3 to boot into recovery mode... _
```

Figure B-7: Press F3 to Boot into Recovery Mode

Step 2: The recovery tool menu appears. Type <4> and press <Enter>. (**Figure B-8**)

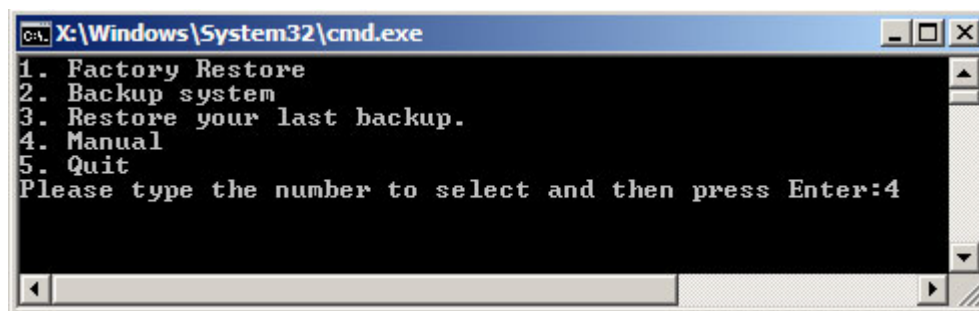


Figure B-8: Recovery Tool Menu

Step 3: The About Symantec Ghost window appears. Click **OK** button to continue.

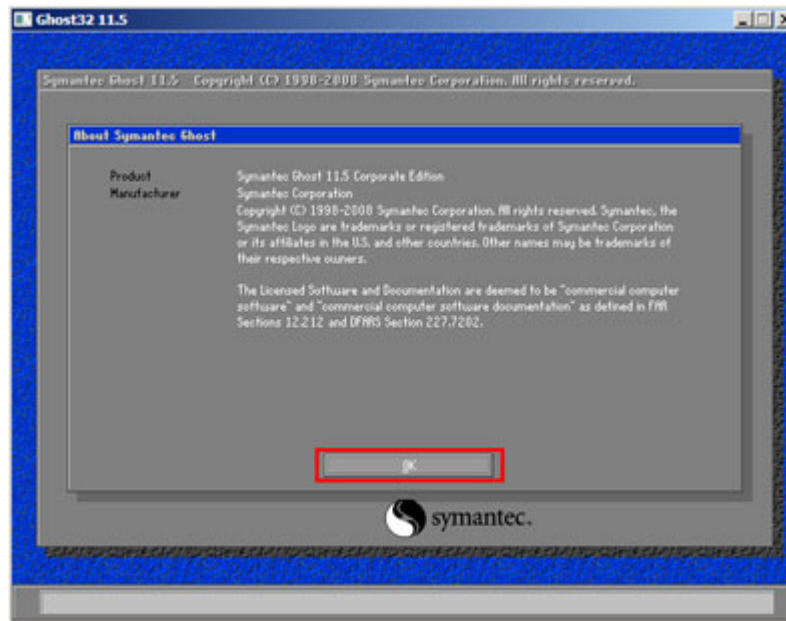


Figure B-9: About Symantec Ghost Window

Step 4: Use mouse to navigate to the option shown below (Figure B-10).

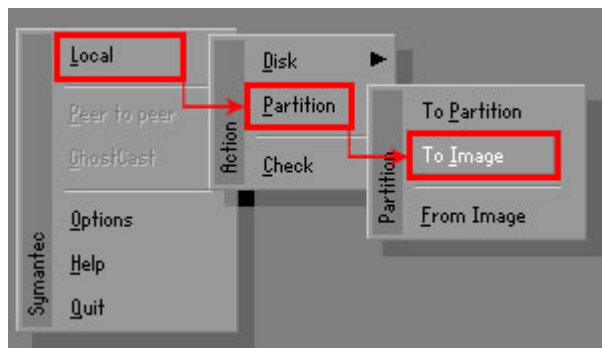


Figure B-10: Symantec Ghost Path

Step 5: Select the local source drive as shown in Figure B-11. Then click OK.

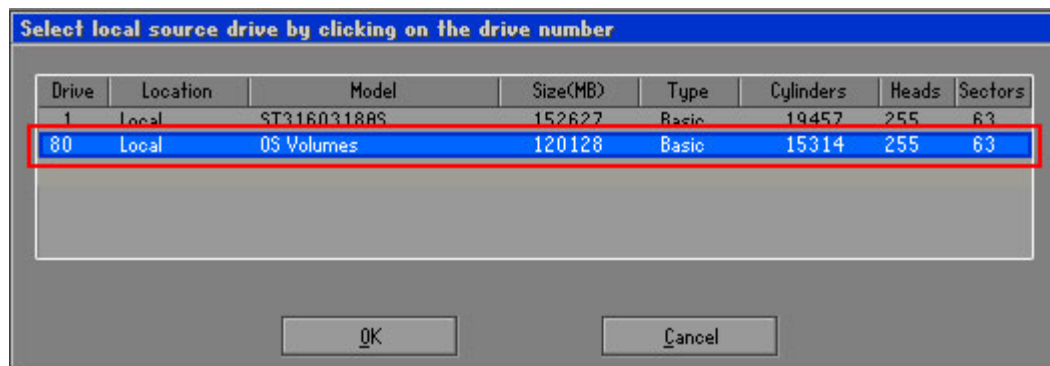


Figure B-11: Select a Local Source Drive

Step 6: Select a source partition from basic drive as shown in **Figure B-12**. Then click OK.

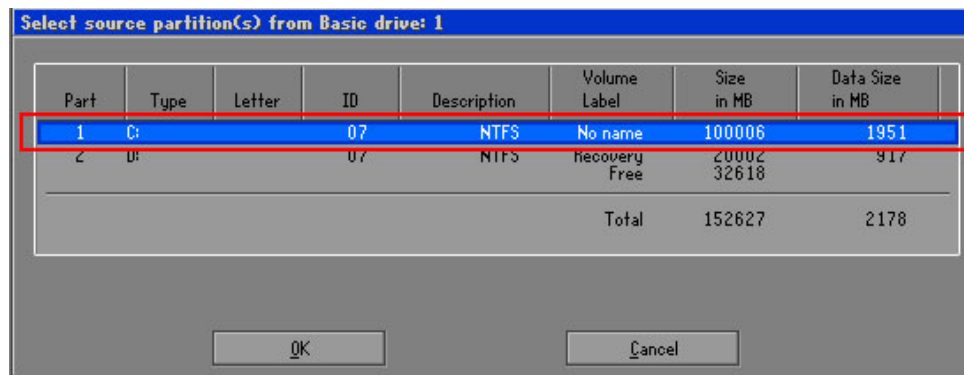


Figure B-12: Select a Source Partition from Basic Drive

Step 7: Select **1.2: [Recovery] NTFS drive** and enter a file name called **iei** (**Figure B-13**). Click **Save**. The factory default image will then be saved in the selected recovery drive and named **IEI.GHO**.



WARNING:

The file name of the factory default image must be **iei.GHO**.

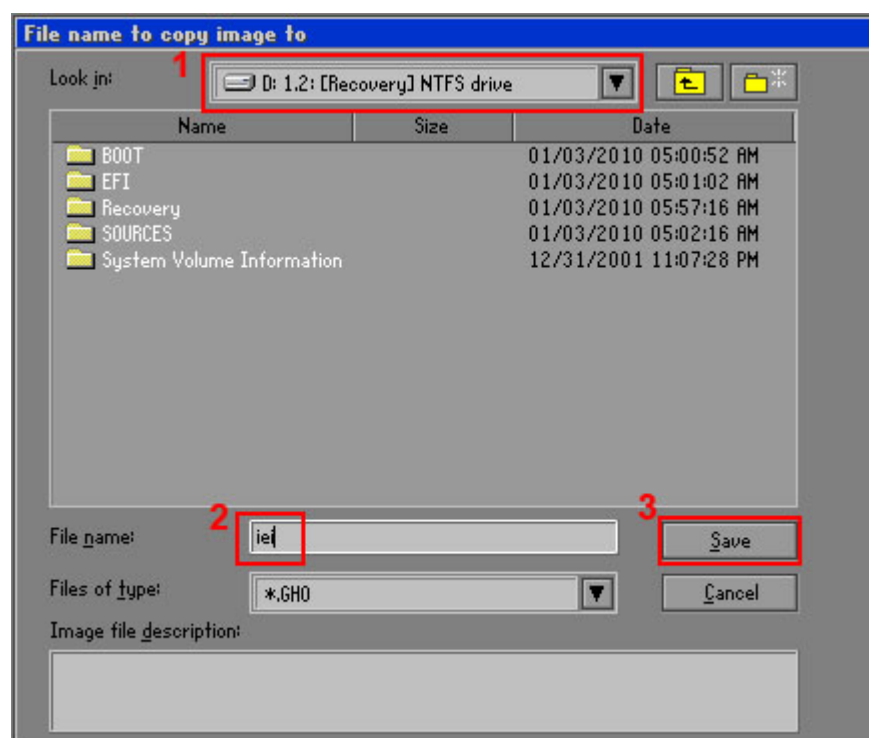


Figure B-13: File Name to Copy Image to

Step 8: When the Compress Image screen in **Figure B-14** prompts, click **High** to make the image file smaller.

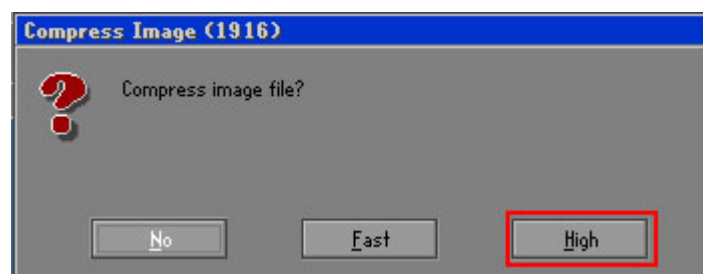


Figure B-14: Compress Image

Step 9: The Proceed with partition image creation window appears, click **Yes** to continue.

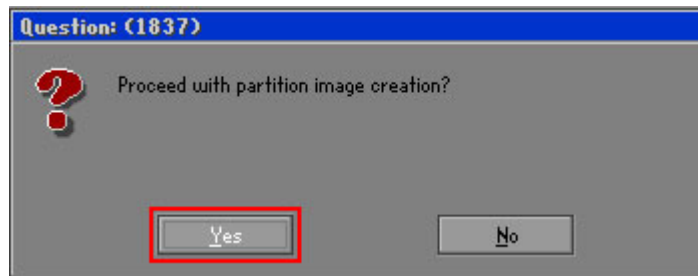


Figure B-15: Image Creation Confirmation

Step 10: The Symantec Ghost starts to create the factory default image (**Figure B-16**).

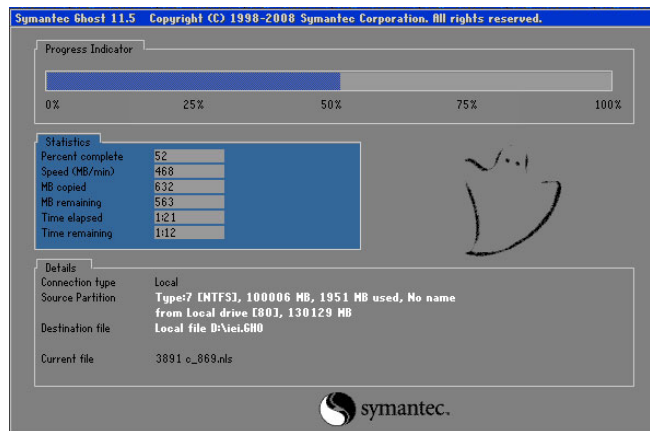


Figure B-16: Image Creation Complete

Step 11: When the image creation completes, a screen prompts as shown in **Figure B-17**.

Click **Continue** and close the Ghost window to exit the program.

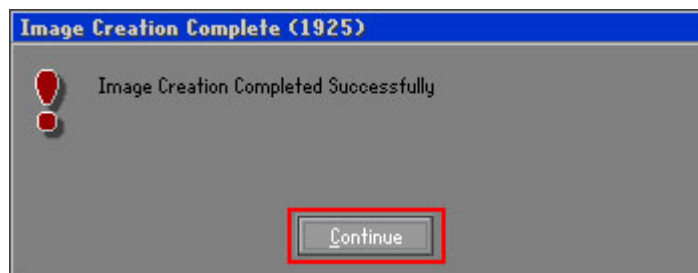


Figure B-17: Image Creation Complete

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Step 12: The recovery tool main menu window is shown as below. Press any key to reboot the system.

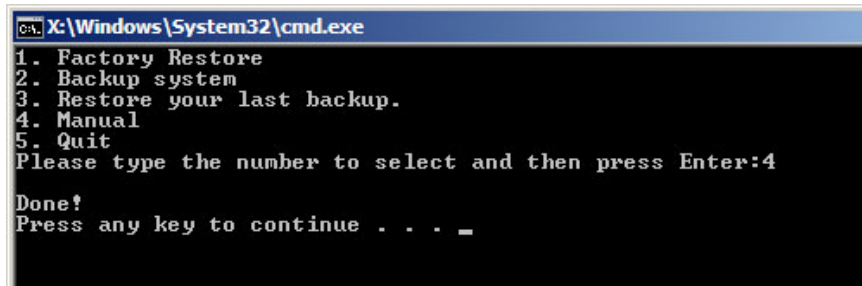


Figure B-18: Press Any Key to Continue

B.3 Setup Procedure for Linux

The initial setup procedures for Linux system are mostly the same with the procedure for Microsoft Windows. Please follow the steps below to setup recovery tool for Linux OS.

Step 1: **Hardware and BIOS setup.** Refer to **Section B.2.1**.

Step 2: **Install Linux operating system.** Make sure to install GRUB (v0.97 or earlier) MBR type and Ext3 partition type. Leave enough space on the hard drive to create the recover partition later.



NOTE:

If the Linux OS is not installed with GRUB (v0.97 or earlier) and Ext3, the Symantec Ghost may not function properly.

While installing Linux OS, please create two partitions:

- Partition 1: /
- Partition 2: **SWAP**

**NOTE:**

Please reserve enough space for partition 3 for saving recovery images.

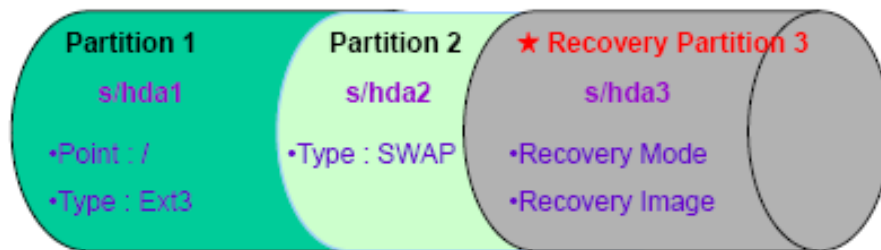


Figure B-19: Partitions for Linux

Step 3: Create a recovery partition. Insert the recovery CD into the optical disk drive.

Follow **Step 1 ~ Step 3** described in **Section B.2.2**. Then type the following commands (marked in red) to create a partition for recovery images.

```
system32>diskpart
DISKPART>list vol
DISKPART>sel disk 0
DISKPART>create part pri size= ____
DISKPART>assign letter=N
DISKPART>exit
system32>format N: /fs:ntfs /q /v:Recovery /y
system32>exit
```

Step 4: Build-up recovery partition. Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient. When the recovery tool setup menu appears, type <3> and press <Enter> (**Figure B-20**). The Symantec Ghost window appears and starts configuring the system to build-up a

recovery partition. After completing the system configuration, press any key to reboot the system. Eject the recovery CD.

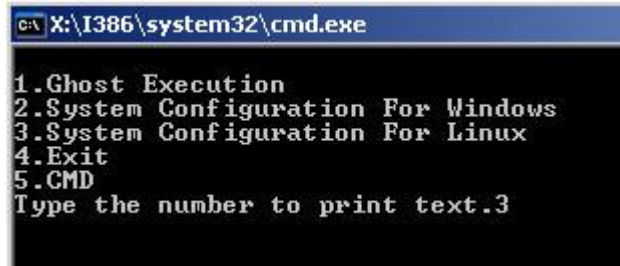
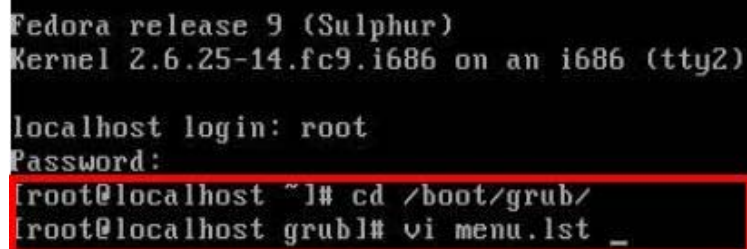


Figure B-20: System Configuration for Linux

Step 5: Access the recovery tool main menu by modifying the “menu.lst”. To first access the recovery tool main menu, the menu.lst must be modified. In Linux system, enter Administrator (root). When prompt appears, type:

cd /boot/grub

vi menu.lst



```
Fedora release 9 (Sulphur)
Kernel 2.6.25-14.fc9.i686 on an i686 (tty2)

localhost login: root
Password:
[root@localhost ~]# cd /boot/grub/
[root@localhost grub]# vi menu.lst
```

Figure B-21: Access menu.lst in Linux (Text Mode)

Step 6: Modify the menu.lst as shown below.


```
#boot=/dev/sda
default=0
timeout=10
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
title Fedora (2.6.25-14.fc9.i686)
    root (hd0,0)
    kernel /vmlinuz-2.6.25-14.fc9.i686 ro root=UUID=10f1acd
    ac38b5c78910 rhgb quiet
    initrd /initrd-2.6.25-14.fc9.i686.img

title Recovery Partition
    root (hd0,2)
    makeactive
    chainloader +1
```

- Type command:
title Recovery Partition
root (hd0,2)
makeactive
chainloader +1

Step 7: The recovery tool menu appears. (Figure B-22)

```
1. Factory Restore
2. Backup system
3. Restore your last backup.
4. Manual
5. Quit
Please type the number to select and then press Enter:
```

Figure B-22: Recovery Tool Menu

Step 8: Create a factory default image. Follow **Step 2 ~ Step 12** described in **Section B.2.5** to create a factory default image.

B.4 Recovery Tool Functions

After completing the initial setup procedures as described above, users can access the recovery tool by pressing **<F3>** while booting up the system. The main menu of the recovery tool is shown below.

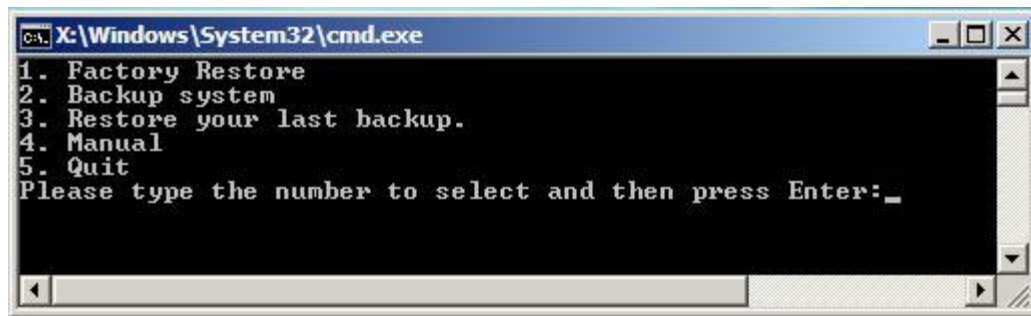


Figure B-23: Recovery Tool Main Menu

The recovery tool has several functions including:

1. **Factory Restore:** Restore the factory default image (iei.GHO) created in **Section B.2.5**.
2. **Backup system:** Create a system backup image (iei_user.GHO) which will be saved in the hidden partition.
3. **Restore your last backup:** Restore the last system backup image
4. **Manual:** Enter the Symantec Ghost window to configure manually.
5. **Quit:** Exit the recovery tool and restart the system.

**WARNING:**

Please do not turn off the system power during the process of system recovery or backup.

**WARNING:**

All data in the system will be deleted during the system recovery. Please backup the system files before restoring the system (either Factory Restore or Restore Backup).

B.4.1 Factory Restore

To restore the factory default image, please follow the steps below.

Step 9: Type <1> and press <Enter> in the main menu.

Step 10: The Symantec Ghost window appears and starts to restore the factory default. A factory default image called **iei.GHO** is created in the hidden Recovery partition.

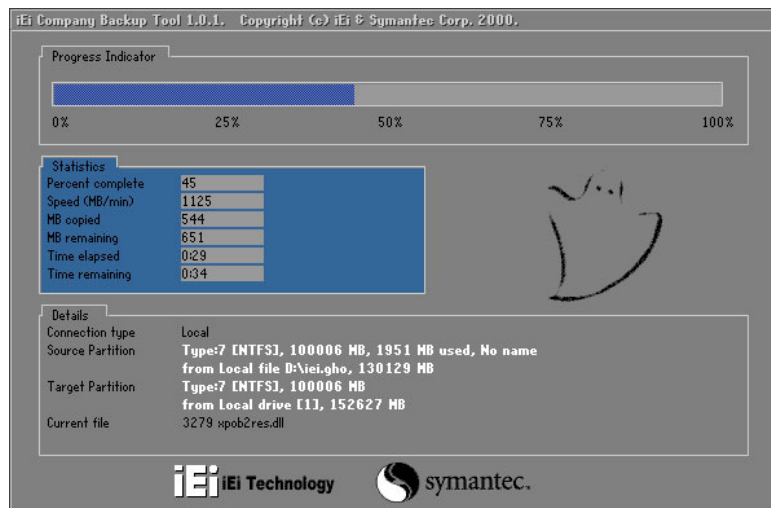


Figure B-24: Restore Factory Default

Step 11: The screen is shown as in **Figure B-25** when completed. Press any key to reboot the system.

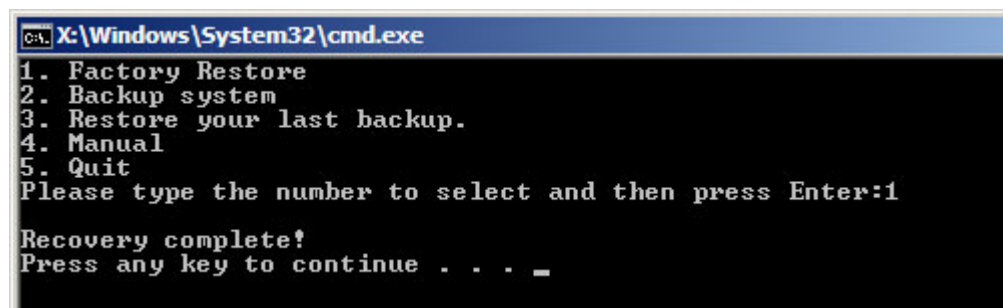


Figure B-25: Recovery Complete Window

B.4.2 Backup System

To backup the system, please follow the steps below.

Step 12: Type <2> and press <Enter> in the main menu.

Step 13: The Symantec Ghost window appears and starts to backup the system. A backup image called **iei_user.GHO** is created in the hidden Recovery partition.

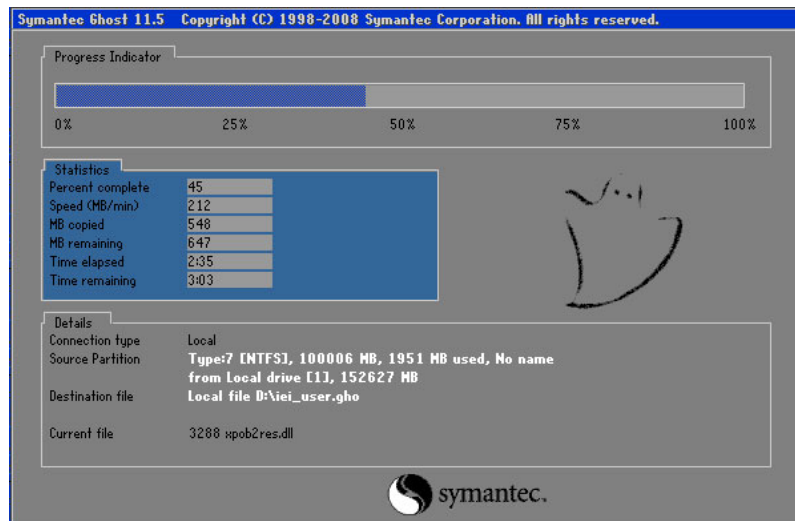


Figure B-26: Backup System

Step 14: The screen is shown as in **Figure B-27** when system backup is completed.

Press any key to reboot the system. 

Formatted: Bullet

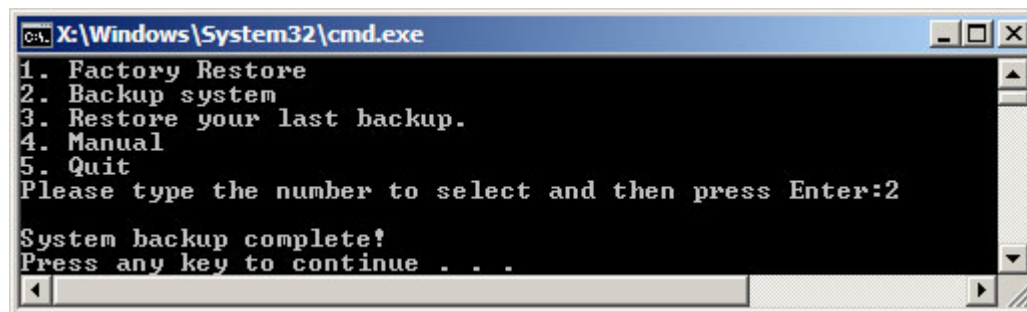


Figure B-27: System Backup Complete Window

B.4.3 Restore Your Last Backup

To restore the last system backup, please follow the steps below.

Step 15: Type <3> and press <Enter> in the main menu.

Step 16: The Symantec Ghost window appears and starts to restore the last backup image (iei_user.GHO).

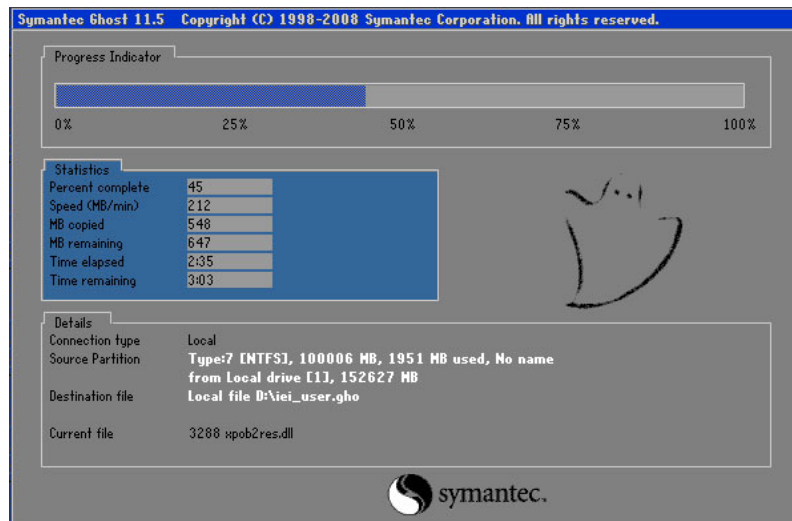


Figure B-28: Restore Backup

Step 17: The screen is shown as in **Figure B-29** when backup recovery is completed.

Press any key to reboot the system. 

Formatted: Bullet

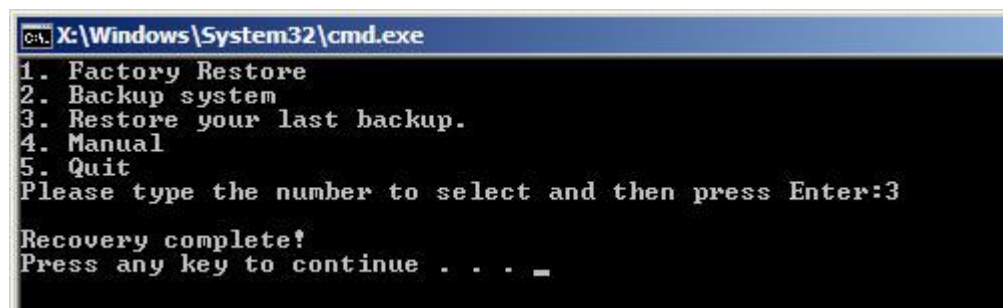


Figure B-29: Restore System Backup Complete Window

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To restore the last system backup, please follow the steps below.

Step 18: Type <4> and press <Enter> in the main menu.

Step 19: The Symantec Ghost window appears. Use the Ghost program to backup or recover the system manually.

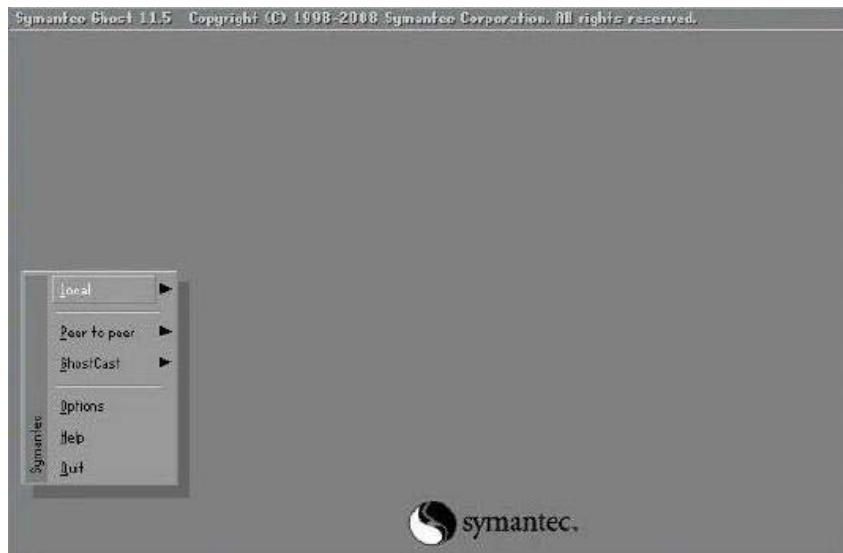


Figure B-30: Symantec Ghost Window

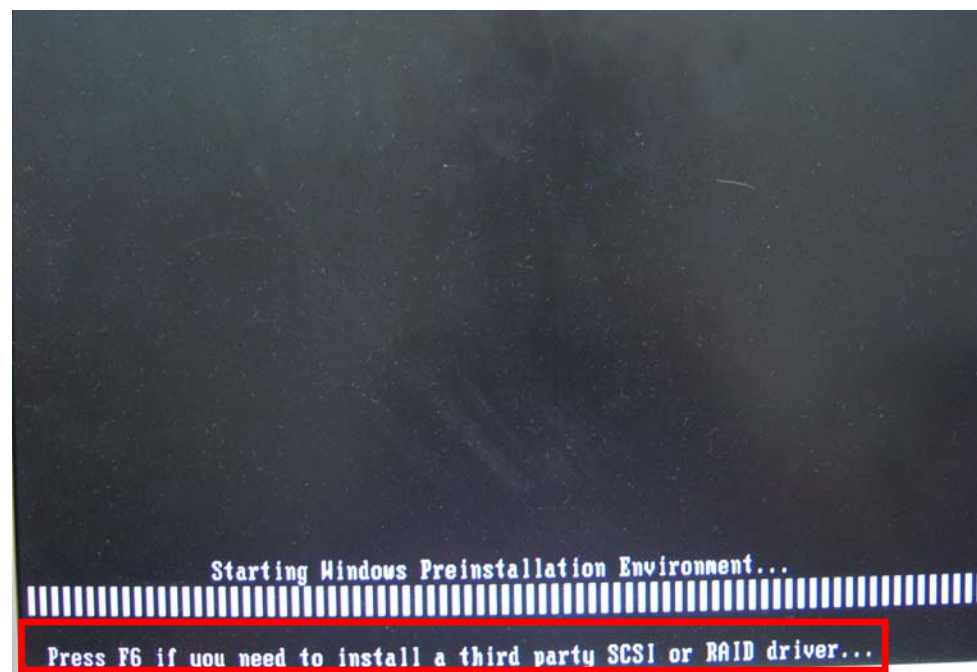
Step 20: When backup or recovery is completed, press any key to reboot the system.

B.5 Other Information

B.5.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

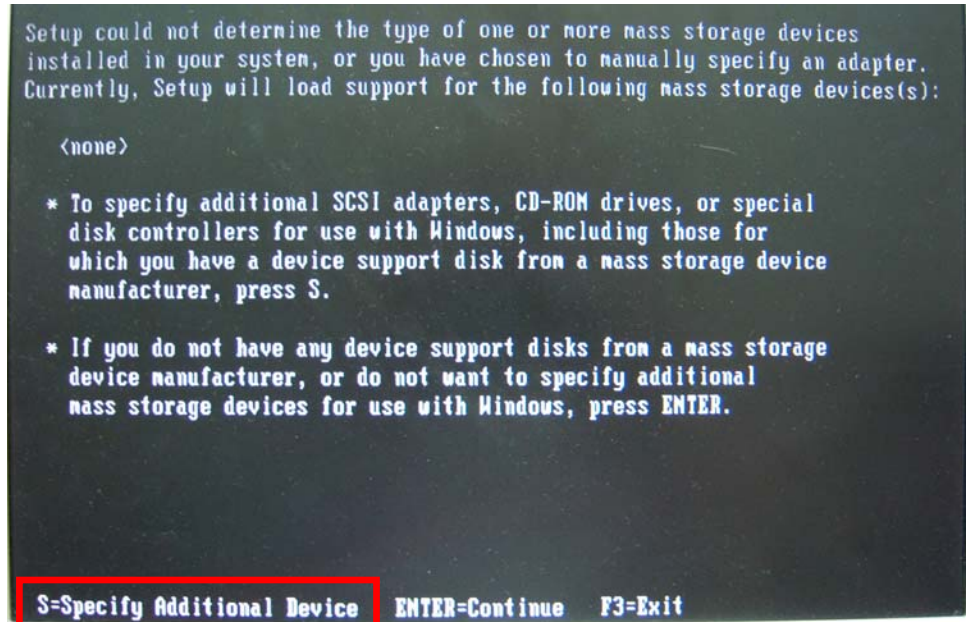
When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

- Step 1:** Copy the SATA RAID/AHCI driver to a floppy disk and insert the floppy disk into a USB floppy disk drive. The SATA RAID/AHCI driver must be especially designed for the on-board SATA controller.
- Step 2:** Connect the USB floppy disk drive to the system.
- Step 3:** Insert the One Key Recovery CD into the system and boot the system from the CD.
- Step 4:** When launching the recovery tool, press <F6>.

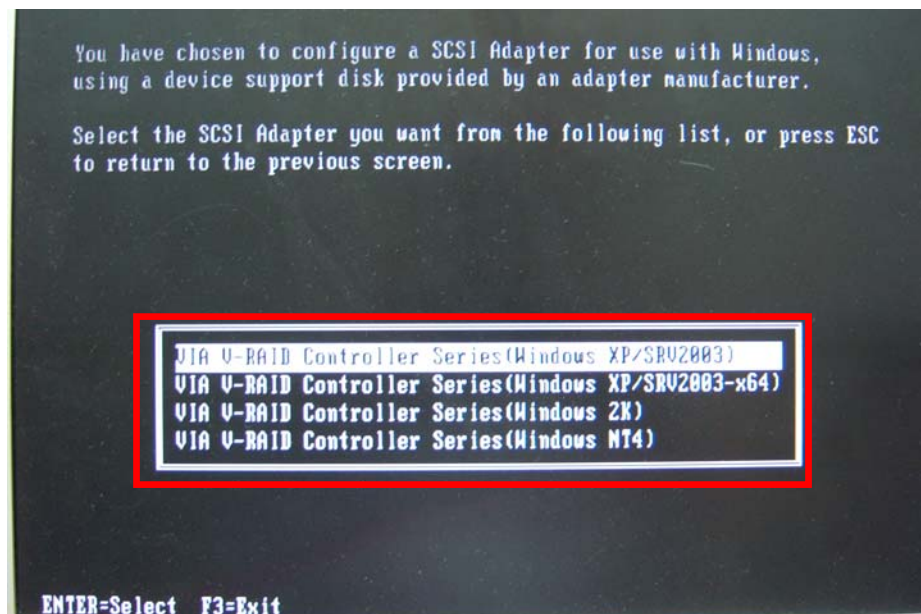


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Step 5: When the following window appears, press <S> to select “Specify Additional Device”.



Step 6: In the following window, select a SATA controller mode used in the system. Then press <Enter>. The user can now start using the SATA HDD.



Step 7: After pressing <Enter>, the system will get into the recovery tool setup menu.

Continue to follow the setup procedure from **Step 4** in **Section 126** to finish the whole setup process.

B.5.2 System Memory Requirement

To be able to access the recovery tool by pressing <F3> while booting up the system, please make sure to have enough system memory. The minimum memory requirement is listed below.

- **Using Award BIOS:** 128 MB system memory
- **Using AMI BIOS:** 512 MB system memory.

Appendix

C

Terminology

| | |
|----------------------|---|
| AC '97 | Audio Codec 97 (AC'97) refers to a codec standard developed by Intel® in 1997. |
| ACPI | Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface. |
| AHCI | Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface. |
| ATA | The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer. |
| ARMD | An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives. |
| ASKIR | Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude ("volume") of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1. |
| BIOS | The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user |
| CODEC | The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system. |
| CompactFlash® | CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types. |
| CMOS | Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors. |
| COM | COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector. |
| DAC | The Digital-to-Analog Converter (DAC) converts digital signals to analog signals. |
| DDR | Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal. |

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| | |
|-----------------|--|
| DMA | Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory. |
| DIMM | Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module. |
| DIO | The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions. |
| EHCI | The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers. |
| EIDE | Enhanced IDE (EIDE) is a newer IDE interface standard that has data transfer rates between 4.0 MBps and 16.6 MBps. |
| EIST | Enhanced Intel® SpeedStep Technology (EIST) allows users to modify the power consumption levels and processor performance through application software. The application software changes the bus-to-core frequency ratio and the processor core voltage. |
| FSB | The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset. |
| GbE | Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard. |
| GPIO | General purpose input |
| HDD | Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data. |
| ICH | The Input/Output Control Hub (ICH) is an Intel® Southbridge chipset. |
| IrDA | Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other. |
| L1 Cache | The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor. |
| L2 Cache | The Level 2 Cache (L2 Cache) is an external processor memory cache. |

| | |
|------------------|---|
| LCD | Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between. |
| LVDS | Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer. |
| POST | The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on. |
| RAM | Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives. |
| SATA | Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps. |
| S.M.A.R.T | Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives. |
| UART | Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports. |
| UHCI | The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers. |
| USB | The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates and USB 2.0 supports 480Mbps data transfer rates. |
| VGA | The Video Graphics Array (VGA) is a graphics display system developed by IBM. |

Appendix

D

Digital I/O Interface

D.1 Introduction

The DIO connector on the KINO-945GSE3 is interfaced to GPIO ports on the Super I/O chipset. The DIO has both 4-bit digital inputs and 4-bit digital outputs. The digital inputs and digital outputs are generally control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.



NOTE:

For further information, please refer to the datasheet for the Super I/O chipset.

D.2 DIO Connector Pinouts

The following table describes how the DIO connector pins are connected to the Super I/O GPIO port 1.

| Pin | Description | Super I/O Pin | Super I/O Pin Description |
|-----|-------------|---------------|-----------------------------------|
| 1 | Ground | N/A | N/A |
| 2 | VCC | N/A | N/A |
| 3 | Output 3 | GP27 | General purpose I/O port 2 bit 7. |
| 4 | Output 2 | GP26 | General purpose I/O port 2 bit 6. |
| 5 | Output 1 | GP25 | General purpose I/O port 2 bit 5. |
| 6 | Output 0 | GP24 | General purpose I/O port 2 bit 4. |
| 7 | Input 3 | GP23 | General purpose I/O port 2 bit 3. |
| 8 | Input 2 | GP22 | General purpose I/O port 2 bit 2 |
| 9 | Input 1 | GP21 | General purpose I/O port 2 bit 1 |
| 10 | Input 0 | GP20 | General purpose I/O port 2 bit 0 |

Table D-1: Digital I/O Connector Pinouts

D.3 Assembly Language Samples

D.3.1 Enable the DIO Input Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O input functions is listed below.

| | | |
|------------|------------------|---------------------------------|
| MOV | AX, 6F08H | Sets the digital port as input |
| INT | 15H | Initiates the INT 15H BIOS call |

D.3.2 Enable the DIO Output Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O output functions is listed below.

| | | |
|------------|------------------|---------------------------------|
| MOV | AX, 6F09H | Sets the digital port as output |
| MOV | BL, 09H | |
| INT | 15H | Initiates the INT 15H BIOS call |

Appendix

E

Watchdog Timer

**NOTE:**

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

| AH – 6FH Sub-function: | |
|------------------------|---|
| AL – 2: | Sets the Watchdog Timer's period. |
| BL: | Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup). |

Table E-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

**NOTE:**

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

EXAMPLE PROGRAM:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

;

```
MOV      AX, 6F02H      ;setting the time-out value
MOV      BL, 30          ;time-out value is 48 seconds
INT      15H
```

;

; ADD THE APPLICATION PROGRAM HERE

;

```
CMP      EXIT_AP, 1      ;is the application over?
JNE      W_LOOP          ;No, restart the application
```

```
MOV      AX, 6F02H      ;disable Watchdog Timer
MOV      BL, 0           ;
INT      15H
```

;

; EXIT ;

Appendix

F

Compatibility

**NOTE:**

The compatible items described here have been tested by the IEI R&D team and found to be compatible with the KINO-945GSE3

F.1 Compatible Operating Systems

The following operating systems have been successfully run on the KINO-945GSE3.

- MS-DOS 6.22
- Microsoft Windows XP (32-bit)
- Microsoft Windows XP Embedded

Appendix

G

Hazardous Materials Disclosure

G.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

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| Part Name | Toxic or Hazardous Substances and Elements | | | | | |
|---|--|--------------|--------------|------------------------------|--------------------------------|---------------------------------------|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CR(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| Housing | X | O | O | O | O | X |
| Display | X | O | O | O | O | X |
| Printed Circuit Board | X | O | O | O | O | X |
| Metal Fasteners | X | O | O | O | O | O |
| Cable Assembly | X | O | O | O | O | X |
| Fan Assembly | X | O | O | O | O | X |
| Power Supply Assemblies | X | O | O | O | O | X |
| Battery | O | O | O | O | O | O |
| <p>O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006</p> <p>X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006</p> | | | | | | |

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|-----------|-----------|-----------|-----------------|---------------|---------------------|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (CR(VI)) | 多溴联苯 (PBB) | 多溴二苯 醚 (PBDE) |
| 壳体 | X | O | O | O | O | X |
| 显示 | X | O | O | O | O | X |
| 印刷电路板 | X | O | O | O | O | X |
| 金属螺帽 | X | O | O | O | O | O |
| 电缆组装 | X | O | O | O | O | X |
| 风扇组装 | X | O | O | O | O | X |
| 电力供应组装 | X | O | O | O | O | X |
| 电池 | O | O | O | O | O | O |
| O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 | | | | | | |
| X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。 | | | | | | |